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PRELIMINARY RIVER ACCESS STUDY OF FIVE MAJOR RIVERS IN MONTANA

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August 19, 1981

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SUMMARY OF FINDINGS

This study was conducted to identify critical recreational access needs on the following five rivers in Montana: Smith, Musselshell, Yellowstone, Beaverhead and Tongue. Secondary sources provided the basis for the descriptive information. Montana Department of Fish, Wildlife and Parks, Forest Service and Bureau of Land Management resource planners and managers identified specific needs and made suggestions which were incorporated into the recommendations.

There is great diversity in the landscapes and issues associated with these five rivers. The Smith and Beaverhead Rivers are experiencing tremendous increases in use. Private landowners along the rivers favor limiting the number of users. A suit has been filed on the Beaverhead River where a private landowner took steps to restrict public floating through his land.

Central issues on the Tongue River pertain to energy development and the resultant impacts on the environment and availability of recreational water resources. The proposed construction of railroads along the river could hinder and possibly prohibit the future development of recreational accesses. Right of ways and railroad crossings may be difficult to obtain.

The Musselshell River has extremely limited public ownership. Access objectives aim at accommodating future pressures from the Billings area. The Yellowstone River offers the widest variety of recreational opportunities by virtue of its course through diverse geographical settings.

Cooperative, jointly sanctioned, river management plans are a necessity for preservation and use of rivers in Montana. Conflicts between private landowners and users have been reduced on the Smith River due to the combined efforts of resource management personnel from three public agencies. However, a stated long range goal which will define and preserve the quality of the recreational experience and guide resource managers on the Smith and other rivers is lacking.

No single agency along a corridor of multiple ownership is in the position to dictate how a river will be managed; for what kinds of experiences; or for how many people. Therefore, these decisions must be made collectively and cooperatively to guard against a gradual deterioration of river opportunities and resources. Lead agencies, charged with the responsibility of taking initiative need to be designated for all rivers in the state.

1. INTRODUCTION

1.1 INTRODUCTION TO THE STUDY

The Bureau of Land Management (BLM) requested a meeting with State of Montana and U.S. Forest Service recreation planning representatives on June 24, 1980. There were two purposes for the meeting: (1) To present a proposal for a cooperative interagency river recreation management program; and (2) To present an outline for a preliminary study. The primary objective of the management program is to cooperatively assist the Montana Department of Fish, Wildlife and Parks (MDFWP) achieve its stated goals of increasing public access to rivers and disclosing alternatives to fee simple land acquisition.[1]

The proposal received favorable reactions from agency representatives; however, all felt it would be necessary to see the results of the preliminary study before proceeding with the discussion of a long term cooperative river recreation management effort. In order to address as many concerns as possible, representatives were asked to contribute ideas and direction to the development of the preliminary study plan. Comments helped to define basic methodology, scope and objectives.

The original outline for this study suggested a process of ranking rivers and streams for their recreational value by applying justifiable filters to a comprehensive list of named rivers and streams in the state. This objective approach was conceived of as the answer to questions from management personnel and the public about the particular order that rivers/streams would be looked at during the course of a long term, cooperative river management effort.

Appendix C lists the completed inventory of all named rivers/streams in Montana. This information was taken from U.S. Army Mapping Service, 1:250,000 topographic quads. The U.S. Army map series was selected for two reasons: (1) It provides the only complete topographic coverage of the state; and (2) The scale and detail of the map provided a first filter by excluding or not naming rivers/streams which were assumed to be of insignificant recreational value for the purpose of this study. All named coulees, canals, ditches and gulches were also excluded from the inventory, based on their manmade nature and/or size.

The concept of applying filters to the inventory as a means of narrowing the field of rivers/streams proved unmanageable. As shown below, only two purely objective filters could be applied. Other filter criteria could be named; however, the objective application of these to the mass of rivers/streams would require extensive primary research. It was felt that too many unjustifiable assumptions would have to be made about the rivers/streams if this inventory-filter method was pursued without field research.

Applied Objective Filters:

1. Perennial or Intermittent Rivers/Streams. Intermittent rivers/streams were excluded due to the unpredictable nature of stream flow.

2. Multiple or Singular Ownership Patterns Along Rivers/Streams Lengths. Singular management jurisdiction of a river/stream under public ownership disqualified it from the study.

Other Filters Considered:

- River class - (public safety factors)
- Navigability
- Proximity to populated areas
- Spectrum of uses provided
- Quality of recreational experiences provided
- Usability based on physical, environmental barriers
- Adequacy of existing access

Thus, a new approach was proposed at the initial meeting on June 24.

Based on information and recommendations from field representatives to their agency planners, rivers of concern could be identified and ranked according to their present or potential recreational value and the need to address public access issues. Agency planners could then meet and compile an aggregate ranking of identified rivers. Those ranked highest would be addressed first in future studies. The five rivers in this study were selected by such a process.

Each individual agency representative at the initial meeting ranked the ten rivers/streams he or she had reason to believe have the highest present or potential recreational value in the state. A compilation of relative rankings was made totaling 17 rivers. The question of whether public access is a problem was then applied to the prioritized list. The top five rivers believed to have access problems were subsequently chosen as the focus of this preliminary study. These are the Smith River, Musselshell River, Beaverhead River, Tongue River and Yellowstone River. The number five was an arbitrary selection.

During the research phase of this preliminary study, all resource planners or managers contacted for information were open and receptive to questioning. This responsive climate was enhanced by efforts of the Montana Department of Fish, Wildlife and Parks. The MDFWP prepared their district personnel with an advance notice of the research proposal and alerted them to a telephone interview with the researcher.

1.2 SCOPE

The scope of this river access study is determined by two factors: Time frame and dependence on secondary sources of information.

It was apparent that a mid-August completion date would be most appropriate given the availability of a researcher for the summer months and the need for results before further discussion or budget requests could be pursued. The researcher felt the objectives could be accomplished in the ten weeks of her temporary employment with the Bureau of Land Management.

The Bureau of Land Management cannot use questionnaires as a means of gathering information from private individuals or organizations without authority from the Office of Management and Budget in Washington. Even with these restrictions, all agencies felt that the objectives of this study could be met through the use of secondary data sources and information gathered from district and area resource managers.

1.3 GOAL AND OBJECTIVES

The goal of this study is to facilitate cooperation among public agencies concerned with river recreation management in providing increased public access on these five rivers.

In order to meet this goal, the following three objectives must be achieved:

(1) Identify stretches of river where increased public access is necessary and desirable but limited by ownership patterns and/or lack of development of available public lands;

(2) On these rivers, verify recreational uses, and the location of existing legal, public accesses.

(3) Where possible, identify specific parcels with potential for acquisition or land use agreements.

2. SOURCES OF INFORMATION

The background and substance of this report is founded on three sources of information. These are: (1) Published literature; (2) Key informants; and (3) Official data sources.

2.1 PUBLISHED LITERATURE

Prior to the investigation of the rivers addressed in this study, it was necessary for the researcher to review academic and local references related to river recreation management and land ownership. These references, which included recreation symposium proceedings, theses and newspaper articles, provided a national and local context for the topics which were to be addressed in each river profile.

Popular recreation guides and technical reports provided descriptive basis for the rivers themselves. These sources were located at the following libraries.

- Bureau of Land Management Library, State Office, Billings, Montana
- Old West Regional Commission Library, Billings, Montana
- Mountain West Research Library, Billings, Montana
- University of Montana Library, Missoula, Montana
- Eastern Montana College Library, Billings, Montana
- Parmly Public Library, Billings, Montana

2.2 KEY INFORMANTS

"Key informants" refer to public resource management officials and public employees intimately familiar with the study rivers. Particular key people were referred to the researcher by State and Forest Service representatives at the meeting in June. Others were identified during the course of the study. They included selected MDFWP Regional Park Managers; Regional Fisheries Managers and Fisheries Biologists; Forest Service District Rangers; BLM District Managers; Resource Area Recreation Planners; County Clerk/Recorders and County Sheriffs. Key informants are named in Appendix A.

A questionnaire was designed as an outline of topics to be discussed with all key informants. Respondents provided information that was based on some quantifiable data, personal observation, experience and professional judgment. The County Clerk/Recorders and County Sheriffs were exceptions. They were contacted specifically for information on all city or county parks which provide access to the study rivers.

2.3 OFFICIAL DATA SOURCES

Numerous federal and state agencies were contacted for published or unpublished official data. The agencies that were contacted include:

- U.S. Department of Agriculture - Forest Service
- U.S. Department of Interior - Bureau of Land Management
- U.S. Department of Interior - Geological Survey
- Montana Department of Community Affairs
- Montana Department of Fish, Wildlife and Parks
- Montana Department of Health and Environmental Sciences - Water Quality Bureau
- Montana Department of Natural Resources and Conservation - Water Resources Division

The above mentioned sources of information proved invaluable. However, it was discovered that personal office visits may yield results and benefits which cannot be collected by letter or telephone. In addition to visiting state offices in Helena and Billings, the researcher was able to observe two stretches of river first hand, on overnight floats down the Smith River and upper Yellowstone.

3. STUDY AREAS

3.1 INTRODUCTION

Each of the five study rivers has been given thorough consideration in the following section. Particular aspects of each river have been addressed. These include: A brief Description of the River; Water Characteristics; Land Use; Landownership Issues; Recreational Uses and Visitation; Existing Accesses; Access Needs and Recommendations.

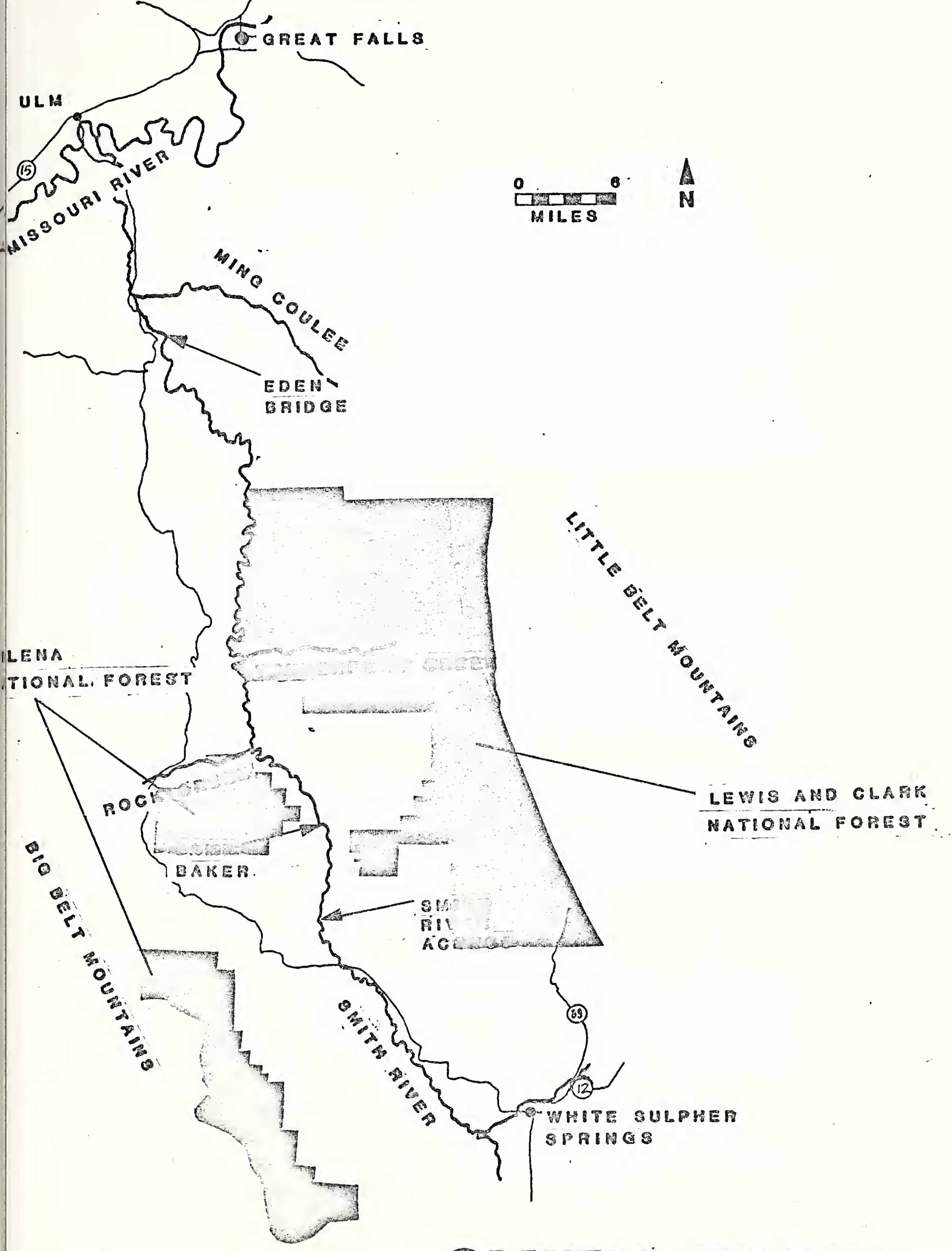
The Description of the River gives a geographical perspective with notes on scenic attributes. Water Characteristics focuses on water quality and the nature of the river for recreational purposes. Land Uses are described because they directly and indirectly affect the quantity and quality of river flow. Landownership Issues are central to this study. Ownership patterns often limit public passage and/or use of public lands. Acknowledged tensions between private landowners and the public have led public resource management agencies to look more closely at the alternatives for providing public recreational access to rivers.

Recreational Uses and Visitation of the study rivers have been documented with varying degrees of accuracy and extent, depending on the availability of research statistics and qualitative information. Recreational resource planners and managers are increasing their efforts each year to quantify data. For example, more traffic counters are now in use by both the MDFWP and the BLM. However, visitation comparisons over time are still limited by inconsistent data collection methods at some recreation sites. Funding is a primary constraint.

In the case of Existing Accesses, this study is concerned only with those located directly on a given river although it is recognized that a floater may gain access from a tributary. MDFWP fishing access sites, BLM and Forest Service recreation areas have been identified as legal public accesses. Official city and/or county campgrounds on the river banks have also been cited. A few bridges have been named; however, it is important to note that these and others may or may not provide a legal access depending on the width of right-of-way. Continual past use of bridges, diversion dams and over private property has tended to legitimize access in the eyes of the public user. The legality of each of these accesses has not been officially verified in this study. In addition, it was difficult to locate accurate and complete information on the situation of commercial campgrounds. These have not been fully documented. A map has been provided at the beginning of each river section in order to provide a reference to the river stretches, towns, cities and MDFWP fishing access sites referred to in the text. An attempt has been made to represent the information as accurately as possible, however, the scale will not provide accurate distances between fishing accesses.

Access Needs are best determined by considering such factors as: 1) Proximity to population centers, 2) Demand for particular facilities such as a boat ramp, 3) Expected socioeconomic expansion in a specific region and 4) Present use and user characteristics. Ultimately, the

recommendations in this report have been based largely on information from key informants. On certain rivers like the Smith, this information is relatively detailed. Where possible, particular State land and BLM sites have been cited for development potential. On other rivers, short sections have been identified where access needs are critical.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SMITH RIVER
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12
WHITE SULPHER SPRINGS

SMITH RIVER

3.2 SMITH RIVER

3.2.1 Description Of The River

The Smith River begins near White Sulphur Springs and meanders north through Meagher and Cascade Counties for approximately 110 miles to its confluence with the Missouri River at Ulm. An impressive limestone canyon carved by the river between the Little and Big Belt Mountain ranges distinguishes this river from others in the state. High, vertical cliffs in the canyon alternate with low benches of grassland, forest and pasture. Walls, caves, natural arches and abandoned homestead sites give floaters a sense of the time and history which have shaped this river corridor. At the same time, they are reminded of the present day by bridges, signs, vacation homes, working ranches, other floaters and by cables and barbed wire that extend across the river. Overall, the scenery is varied - primitive canyon lands alternate with open agricultural flatlands and rolling hillsides. The river continues to redesign the landscape by shifting gravel bars, eroding banks and reforming beach areas and pools with sand deposits.

3.2.2 Land Use

Meagher County

Land use mapping has not been completed for Meagher County. However, inspection of the river stretch indicates a mixture of rangeland, dry and irrigated cropland in the uppermost sections. These change to steeper forest and rangelands as the river enters the National Forest and canyon area in northern Meagher County. There are two moderate subdivisions at Two Creek and Castle Bar just below the Meagher/Cascade county line on the privately owned western bank. A historic site is evident at Fort Logan and a stream gauging station is located nearby.

Cascade County

Cascade County's southern portions are dominated by timber and rangeland. Extensive commercial forest land lies within the National Forest on the Smith's eastern shore. As the river winds north through the county, it opens up once again to a mixture of dry and irrigated cropland, hayland, range and interspersed forest. One mineral extraction area is adjacent to the river north of Ming Coulee.

3.2.3 Water Characteristics

Water quality is affected by extensive cattle ranging and agricultural use of herbicides. It is considered unpotable, although its appearance is relatively clear above Eden Bridge. Below the bridge the water is turbid. Resource managers express knowledge of clean, potable springs along the river but have not publicized them for fear of harmful human impacts before adequate management strategies can be devised. Indian Springs is an exception known to the public.

The river is considered Class I½-II for boating purposes.[2] The uppermost section from the forks to Camp Baker is not recommended for the novice boater. Water level is generally low due to irrigation uses. Protruding rocks and a few difficult rapids are resultant hazards.

The midsection, approximately 60 miles between Camp Baker and Eden Bridge is the most popular floating section. Water funnels swiftly around rocks, and riffles alternate with deep pools.

Below Eden Bridge the river widens out, becomes shallow and moves much more slowly. The floating season for the entire river is considered to be relatively short, peaking in mid to late June.

The U.S. Geological Survey (USGS) stream gauging station at Fort Logan recorded the following information for the summer months in 1980.

TABLE 1

TOTAL ACRE FOOT VOLUME PER MONTH/MEAN CUBIC FEET PER SECOND

	May	June	July	August	September
@ Ft. Logan	14730/240	22570/379	9850/160	5260/85.5	5670/95.2

Source: U.S. Geological Survey, Billings

3.2.4 Landownership Issues

The following percentages represent approximate surface ownership jurisdiction along the river.[3]

TABLE 2

Entire River		Camp Baker - Eden Bridge	
State	8%	State	5%
Forest Service	11%	Forest Service	20%
BLM	5%	BLM	10%
Private	76%	Private	65%

Ownership designation in the heavy recreational use areas between Camp Baker and Eden Bridge is of primary interest. Here, the Forest Service, Bureau of Land Management and State of Montana are the public agencies which administer about 35 percent of the land. The Montana Department of Fish, Wildlife and Parks (MDFWP) has leased state land or purchased access sites and therefore plays the significant cooperative role with the BLM and Forest Service in recreational and resource management.

The Smith has increased in popularity as a recreational river in recent years. Conflicts between floaters and private landowners have resulted. The MDFWP and BLM employed river rangers during the 1980 summer months. Only the MDFWP has continued that program in 1981. The purpose of river rangers has been to oversee public use of the river, conduct user and site surveys, investigate conflicts, and make recommendations for management improvements. It is generally agreed by landowners and resource managers alike that the presence of river rangers has mitigated conflict. In addition, recreationists commonly remarked about the benefits of assistance by river rangers in a 1980 Smith River User Survey.

A significant finding in the user survey pertains directly to the ownership issue and resultant conflicts. Recreationists reported that they knowingly camped on private land only 44 times. When asked to designate the exact location of these sites on a map, it was found that they had actually camped on private land a total of 118 times. It is apparent that recreationists do not readily distinguish between public and private land. Hence, there is a greater likelihood of trespassing.

During the summer of 1980, personal interviews were conducted with 17 of 18 major private landowners along the Smith to better understand the nature of conflicts. (Over 30 other owners control isolated sites.) Results, recorded in the Smith River Ranger Report by Mike Hathaway (MDFWP), show that significant percentages of those surveyed feel littering (66%), trespassing (66%), too many people (72%), length of season (50%) and lack of enforcement (61%) are problems. Other problems cited are dogs, human waste, parties, vegetative damage, livestock harassment, camping in hay meadows, lack of signing and vandalism. Solutions suggested by most of those surveyed were: Limit the season (66%), limit number of floaters (66%), and more enforcement (55%). Other possible solutions were: better signing (22%), provide facilities (11%), land acquisition (11%) and land use agreements (22%).

Comments on the landowner preferences for certain solutions included in Hathaway's report can be helpful in developing management strategies. To summarize, a majority of landowners view public land acquisition "as encroachment towards their property, resulting in eventual loss of control over their lands." Yet, landowners "place responsibility for control of floaters upon the managing agencies." Giving consideration to the absence of unity and purpose among landowners, Hathaway recommends that the managing agencies initiate a management plan aimed at land use agreements. Specifically, concrete agreements with suitable incentives need to be drawn up and proposed to landowners. Hathaway identifies three landowners willing to negotiate purchase or trades of their lands and four to six willing to entertain agreements. He suggests they might take the lead in supporting management planning efforts.

3.2.5 Recreational Uses and Visitation

Visitation

Based on registration card information, MDFWP estimates 1400 floaters put in at Camp Baker in May-August of 1980. At least seven outfitters are known to have floated this section for 2-6 day periods in 1980. Traffic counter data registered the following visits (number of people) between May 24 and September 30, 1980, at two accesses.

TABLE 3

Sites	
Camp Baker Site	3,080
Smith River Site	2,806

Source: MDFWP

Additional recreational use data collected by the MDFWP from May 1975 to April 1976, estimates 10,924 resident and nonresident fishermen enjoyed the river.

It was also found that the average trip on the Smith was 3.5 days with 87% of the parties beginning at Camp Baker. Average party size was 5.88 people but 82.4% of those surveyed did not feel crowding was a problem. Users were most likely to be from Lewis and Clark and Cascade Counties (41%). Most floated in June (53%) and weekends were the most popular use periods, as shown below.

TABLE 4

	Sat	Sun	Mon	Tues	Wed	Thurs	Fri
Recreation Days* (Ave.)	80	70	34	39	38	51	66
Percent of Total Time	21%	19%	9%	10%	10%	13%	18%

*Recreation day - "Any part of a day spent recreating on the Smith River, or its shores by one entire party."

Source: MDFWP Smith River User Survey, Summer 1980.

Activity Preferences

Both the BLM and MDFWP conducted summer visitor surveys in 1980 with comparable results. The MDFWP Smith River user survey established the following priority of uses.

TABLE 5

Rates*/Participation/Percentage of Total	Activity
105 / 95%	Floating (valued as the activity itself - 90% canoes or rafts)
105 / 95%	Camping (overnight)
93 / 85%	Fishing
90 / 82%	Sightseeing
90 / 82%	Rest, Relaxation
79 / 72%	Photography
74 / 67%	Bird and animal watching

Other responses received less than 50% participation.

* N=110

Fisheries and Wildlife

The Smith River is less renowned than other trout streams. However, it offers excellent rainbow and brown trout fishing. The MDFWP has the following fisheries resource ratings for the river.

TABLE 6

Forks to Fort Logan Bridge	3
Fort Logan Bridge to Rock Creek	2
Rock Creek to Truly Bridge	3
Truly Bridge to Mouth	4

Source: MDFWP

These ratings (1-6) are based on the higher class assigned for the following two criteria: (1) Habitat and species value and (2) Sport fishery potential. Rating #1 = Highest value fishery resource. Rating #2 = High priority fishery resource. Rating #3 = Substantial fishery Resource. Rating #4 = Moderate fishery resource. Rating #5 = Limited fishery resource value. Rating #6 = No assessment.

Wildlife that can be observed within the river corridor includes mule deer, elk, beaver, mink, river otter and others. Numerous varieties of birds and waterfowl can also be seen. Aeries may be identified high on the cliffsides of the canyon.

3.2.6 Existing Access

The MDFWP maintains the only three legally designated public accesses to the Smith River.

TABLE 7

Access	Facilities
Smith River	Toilets, Camping, Picnic Area
Camp Baker	Toilets, Parking, Information Board
Eden Bridge	Parking

Source: MDFWP

Given the floating traffic on the river and the necessity of vehicular parking for extended periods of time, the Eden Bridge access is problematic. This access is a one acre plot on the western shore immediately above the bridge. The plot has been leased for five years (four remaining) with no guarantees on future leasing rights. Parking space is occasionally inadequate. This leads to haphazard parking practices.

Between Eden Bridge and Truly Bridge, the road runs along the river bank and provides bank fishing access. However, relative to upstream sections the fishing is poorer and the water turbid. Trout and whitefish are not found north of Truly Bridge.

Other unofficial and possibly illegal access may be in use at bridges, from county roads and over private property. The researcher is aware of the private fee campgrounds situated in the float corridor region.

3.2.7 Access Needs

The Smith River offers a unique recreational floating experience which has been preserved by limiting public access. Floaters must be prepared to spend an average of 3.5 days traveling from Camp Baker to the first public egress 58 miles downstream at Eden Bridge. The length of travel and adventurous nature of the trip sets this river apart from others in Montana. Resource planners and managers are hopeful of maintaining these qualities for those who enjoy "the float" as much as the other activities engaged in while floating. No other overland accesses to the float corridor are needed.

To manage for a particular quality of experience, there are long and short term strategies which need to be examined. Long term options for public managing agencies are: (1) To collectively develop a comprehensive river management plan; (2) Draft easement and land use agreements for landowners; and (3) Provide a forum for discussion of public and private needs and objectives. In addition, resource managers may eventually need to address the possibility of limiting the number of floaters.

In the short term, immediate, reoccurring problems need to be addressed to mitigate friction and conflict between users and private landowners. Of primary importance is the need for additional public campsites from Camp Baker to Eden Bridge. Additions serve two purposes. They accommodate the increasing numbers of floaters using the river and they relieve the pressure the public puts on private lands.

Two critical areas have been identified.

(1) Camp Baker to the southern boundary of the Lewis and Clark National Forest.

Resource managers view this as a priority area. The need arises because floaters frequently put in at Camp Baker in the mid to late afternoon and are unable to reach available public land before they camp. Trespassing results:

Public Land

- Camp Baker, T12N, R4E, Sec. 13
- BLM site, T13N, R4E, Sec. 34, 3 miles north of Camp Baker, both sides of river, approximately 1/4 mile river frontage.*
- BLM site, T13N, R4E, Sec. 28, 4½ miles north of Camp Baker, both sides of river, approximately 1/4 mile of river frontage.*

*See Appendix B for detailed recreation area inventory system (RAIS) site evaluation - Meagher County #1 and #2.

Private Land
North of the two BLM sites listed above, there are at least 11 other known places where people camp on private land.

Indian Springs, T13N, R4E, Sec. 29, the popular potable water source is on this land. Therefore, heavy use can be expected to continue.* See appendix for detailed (RAIS) Meagher County #3.

(2) Northern boundary of Lewis and Clark National Forest to Eden Bridge.

Floaters who intend to take out early on their final day on the river desire to camp closer to Eden Bridge than the national forest boundary. Others find no available or suitable public areas at the northern end of the National Forest; consequently, camping use has extended onto private land.

Public Land

- BLM site (a) T16N, R4E, Sec. 30, 35.5 miles north of Camp Baker; about 22 miles from Eden Bridge; both sides of river; approximately 1/2 mile of river frontage.*
- BLM site (b) T16N, R3E, Sec. 12, 43.5 miles north of Camp Baker; about 15 miles from Eden Bridge; both sides of the river; approximately one mile river frontage.*
- Eden Bridge, T17N, R3E, Sec. 7, one acre, west shore off southern corner of Eden Bridge.

*See Appendix B for detailed (RAIS)-Cascade County #5 and #8.

Private Land
Downstream from the northern border of the Lewis and Clark National Forest there are about 13 known campsites; there are two on each of the two BLM sites listed above. The others are clustered on private land near the public sites.

Other Site Information
Although the middle, National Forest section has not been identified as a critical area, resource planners have documented numerous public and private land sites which they feel need to be developed or acquired to ease pressures in this stretch. An overall composite of BLM and Forest Service inventory information for the specific sites previously mentioned, in addition to others in the midsection, is available through BLM Recreation Planner, Headwaters Resource Area in Butte. It is generally agreed that the Tenderfoot Creek, Cow Coulee and Parker Flat to Deep Creek areas are in need of additional campsites.

In addition, the MDFWP and Montana Department of State Lands have designed a recreation evaluation system for inventory of all state lands. A review of computerized data details the following site information for state lands on the Smith River.

TABLE 8

Computer List Heading	Legal Description of Location	Approx. Location
Class A (Highest Rec. Rating) Lands on Major Streams	T12N, R4E, Sec. 36	South of Camp Baker Beaver Creek
Class B or Above Land on Major Water Bodies W/Access	T11N, R4E, Sec. 24	South of Camp Baker at Camas Creek
Historical Arch. Sites	T16N, R3E, Sec. 36 T15N, R3E, Sec. 36 T14N, R3E, Sec. 36	In midsection between N and S boundaries on Lewis and Clark National Forest

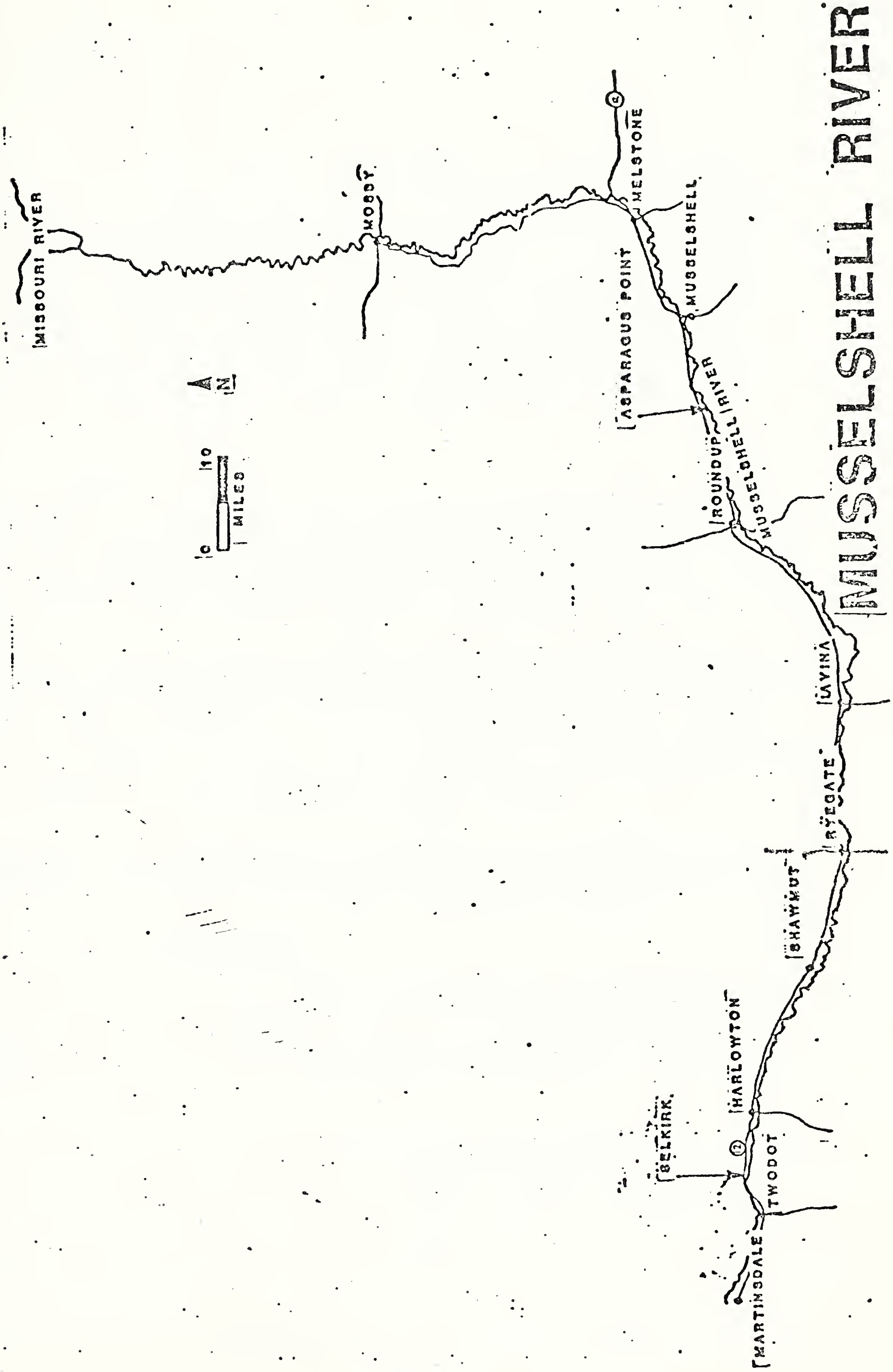
Source: MDFWP

3.2.8 Recommendations

1. The river ranger program should be continued. The rangers' presence on the river, feedback and recommendations have greatly enhanced public relations and public information channels in addition to previously mentioned information. Improvements have included relocation of the floater's information board (7-81) at Camp Baker, posting and dissemination of weekly river conditions information to BLM and FS offices and evaluation of appropriate signing on the river.

2. Focus acquisition/easement efforts on those private lands where the public is known to camp at present.

3. The Bureau of Land Management, the agency which controls the majority of public land in the identified critical areas should contact the private landowners to further explore acquisition of land or easements.


MUSSELSHELL RIVER

3.3 MUSSELSHELL RIVER

3.3.1 Description of the River

The North and South Forks of the Musselshell join at the Meagher/Wheatland County line to form the Musselshell River. The river flows eastward into the plains through the center of the State for approximately 165 miles before turning abruptly north at the town of Melstone. Three counties, Wheatland, Golden Valley and Musselshell, are traversed by the east-west course of the river. Three additional counties, Rosebud, Petroleum and Garfield, have boundaries formed by the river in its north-south course. The scenery along the river varies little. Smooth, rolling hills with dispersed forests contour the land, easing it to lower elevations in the east. Overall, the land appears relatively flat and open. The horizon is broken by distant mountain ranges to the north, south and west.

3.3.2 Land Use

There are two distinct layers of land use along the Musselshell. From the Forks east to Lavina, the land adjacent to the river is comprised of irrigated cropland, hayland, pasture and forest land. A major highway parallels the entire east-west section of the river.
The second, peripheral layer is mostly nonirrigated cropland and rangeland.

Continuing east to Melstone, a thin, mixed band of irrigated and nonirrigated croplands interspersed with rangeland can be found along the river banks. The peripheral land use changes drastically to large tracts of suburban land in and around the town of Roundup. There is also an increase in forested land. Roundup is the largest urban development along the river. Other smaller urban areas and a couple of recreational and mineral extraction sites dot the river corridor.

The north-south section of the Musselshell is surrounded by extensive rangeland. Occasional patches of irrigated and nonirrigated cropland, hayland and pasture are restricted to the western shore.

3.3.3 Water Characteristics

The Montana Water Quality Bureau has classified the upper Musselshell east to Shawmut as suitable for bodily contact and recreation but unpotable without conventional treatment. Agricultural and grazing practices have contributed to additional degradation of water quality from Shawmut to the mouth of the river.

The Musselshell River runs wide and shallow over a predominately gravel bottom. In the spring it is considered very rough, with winds and rocks creating whitecapped turbulance. Although boating (canoes and rafts) is possible in places, the Musselshell is not known as a boating river. The frequent need to walk boats over gravel bars, the absence of adventurous boating opportunities and the relatively low attraction of related activities steer boaters to other rivers.

USGS stream gauging stations at the following locations provided water volume data for the Musselshell during the summer of 1980.

TABLE 1

TOTAL ACRE FOOT VOLUME PER MONTH/
MEAN CUBIC FEET PER SECOND

	May	June	July	Aug	Sept
@Harlowtown	24890/405	52550/883	12350/201	7840/128	5000/84.1
Ryegate	Data Not Available for 1980				
Roundup	23960/390	61870/1040	19260/313	12010/195	7140/120
@Mosby	11520/187	57910/973	10090/164	10420/169	5750/96.6

Source: U.S. Geological Survey

3.3.4 Landownership Issues

Landownership percentages are shown below as a total for the entire length of the river and for the east-west section from the Forks to the Petroleum County line, and for the north-south section from the Petroleum County line to the mouth.

TABLE 2

Entire River		Forks - Petroleum County Line		Petroleum County Line-Mouth	
State	6%	State	6%	State	7%
BLM	9%	BLM	1%	BLM	26%
Private	86%	Private	93%	Private	67%

The percentages highlight the Forks-to-Petroleum County section as an area of extremely limited public ownership. In the Montanan's Fishing Guide, Dick Konizeski states that permission to fish is freely given by private landowners. However, public resources planners and managers report that (1) nine times out of ten you have to cross private land to fish the river; (2) ranchers are beginning to close their lands and (3) an increase in no trespassing signs are evident. No specific incidents of landowner/public conflicts have drawn officials' attention.

From Petroleum County - mouth there is a great increase in the amount and percentage of public land. It must be noted that State lands which have been leased are not open to the public. On the other hand, BLM land is theoretically open to public access regardless of the nature of lease agreements to ranchers or others. In trying to gain legal access, river users experience confusion in distinguishing BLM land from other lands.

3.3.5 Recreational Uses and Visitation

Visitation

Specific survey data is not available for the Musselshell River but resource planners and managers agree the Musselshell River is not

overused. The only available traffic counter information reported the following.

TABLE 3

Dates	Site	Visits
May 24 - Sept 30, 1980	Selkirk Fishing Access (FA)	8.193 visits (# of people)
May - July 1981	Hamilton's Asparagus Point	90 cars

Source: MDFWP and BLM Billings Resource Area

The 90 cars at Asparagus Point is considered minimal. This may be explained by the fact that the site is not yet posted by the managing agency (the BLM) nor is it marked on recreation maps.

Informants indicate local inhabitants are the primary visitors and users of the Musselshell River resources. However, tremendous growth is expected in the Billings metropolitan area and resource planners believe the Musselshell will experience increased pressure. Its proximity to Billings, the relatively good fishing in upper stretches and excellent hunting make it an attractive area for recreation.

Activity Preferences

Although survey data is unavailable, activity preferences can be based on the observations of public agency resource managers. Fishing is considered the primary recreational activity; asparagus picking and hunting are ranked second; swimming and floating are ranked third.

Asparagus picking may not be considered a recreational activity by many. However, for enthusiasts of the sport, wild asparagus picking is a challenging activity that takes them to the banks of the Musselshell River where prime fields are a tightly guarded secret.

Swimming and floating are local pastimes, as well. Swimming is confined to a few popular swimming holes. Floating is marginal, at best. Rafts or innertubes are the primary types of craft used during June and July.

Fisheries and Wildlife

Fishing in the upper one-third of the river (west of Lavina) is considered excellent by local experts. Brown and rainbow trouts can be found in this region. However, the nonspectacular setting and the lure of the western mountain streams has not allowed the Musselshell to draw fishermen from around the State. Near Lavina the river becomes a warm water fishery with catfish and low populations of bass. Fishing is limited from here to the mouth of the river. Bass are being stocked and it is hoped that fish population will increase to a point where fishing is more desirable in these sections.

The MDFWP fisheries resource ratings are presented below. Note these ratings do not reflect the excellent ratings of local experts as reported by Dick Konizeski in The Montanan's Fishing Guide.

TABLE 4

Forks to Careless Creek	Rating 3 - Substantial Fishery Resource
Careless Creek to Petroleum/ Musselshell County Line	Rating 4 - Moderate Fishery Resource
Petroleum/Musselshell County Line to Mouth	Rating 3

Source: MDFWP

Konizeski describes the area around Harlowton as the "heart of antelope country." In addition, mule and whitetail deer are found in abundance on the flatlands. Smaller game such as sage grouse, sharptail grouse, pheasant and duck provide exceptional hunting along the entire river corridor.

3.3.6 Existing Access

Designated public access to the Musselshell River is extremely limited. There are two sites on Federal or State land.

TABLE 5

MDFWP	Facilities
Selkirk Fishing Access	Toilets, drinking water, camping, picnic area
BLM.	
Hamilton's Asparagus Point	None

Source: MDFWP and BLM

Information provided by County Clerk and Recorder's Offices and County Sheriff's Offices has revealed two other accesses administered by the cities and/or counties. These are Cowbells Park campground in Roundup and a campground in the town of Musselshell. Both provide floating and fishing access to the river, as well as camping and day use facilities.

As previously mentioned, 26 percent of the land along the north-south stretch of the river is BLM land. Passage is available to these public lands only on the western shore where a county road runs parallel to the river up to the town of Mosby. To this point, public lands on the eastern shore are landlocked by private land and are inaccessible by road. North beyond Mosby, county roads make some public land - and therefore the river - accessible on both sides of the river.

3.3.7 Access Needs

Despite the length and centrality of the Musselshell River, it has received limited attention from the public, resource planners and managers. The central question here is whether the public is turned away from the river as a result of scarce public access or for other

reasons. Put another way, does the Musselshell offer sufficiently appealing recreational opportunities to attract the public if access were available? This question requires extensive survey research to answer.

In the short term, resource managers have made educated guesses on the need for additional accesses. It has been determined that no additional accesses are needed from Lavina to the mouth of the river unless the fish populations were to improve substantially in these lower stretches. However, the Forks to Lavina (specifically around Harlowton) is a target area for more sites for three reasons. (1) A greater number of recreational opportunities are available there. (2) The fishing there is excellent. (3) Greater demand is expected to come from the Billings area in the future. A number of State lands with good potential for access development are identified in the next section.

Other Site Information

The MDFWP and Montana Department of State Lands Recreation Evaluation System inventory has identified the following State lands on the Musselshell River within the important access region.

TABLE 6

Computer List Heading	Legal Description of Location	Approximate Location
High water and vegetation scores near a major road.	T6N R19E Sec.2	2-4 miles west of Ryegate, north shore.
	T6N R18E Sec.2	10-12 miles west of Ryegate approximately 20 miles east of Harlowton, south shore.
	T8N R12E Sec.16	8-10 miles west of Twodot, south shore.

Other sites on the Musselshell Outside the Critical Region are:

High Water and vegetation scores near a major road.	T10N R31E Sec.16	4-6 miles east of Melstone, west shore.
	T8N R26E Sec.16	2-4 miles east of Roundup, both sides.
	T9N R27E Sec.36	4-6 miles west of Delphia, north shore.
	T14N R30E Sec.16	1-3 miles south of Mosby, west shore.
	T15N R30E Sec.16	5-6 miles north of Mosby both sides.

Source: MDFWP

These sites should be given primary consideration for multiple land use agreements.

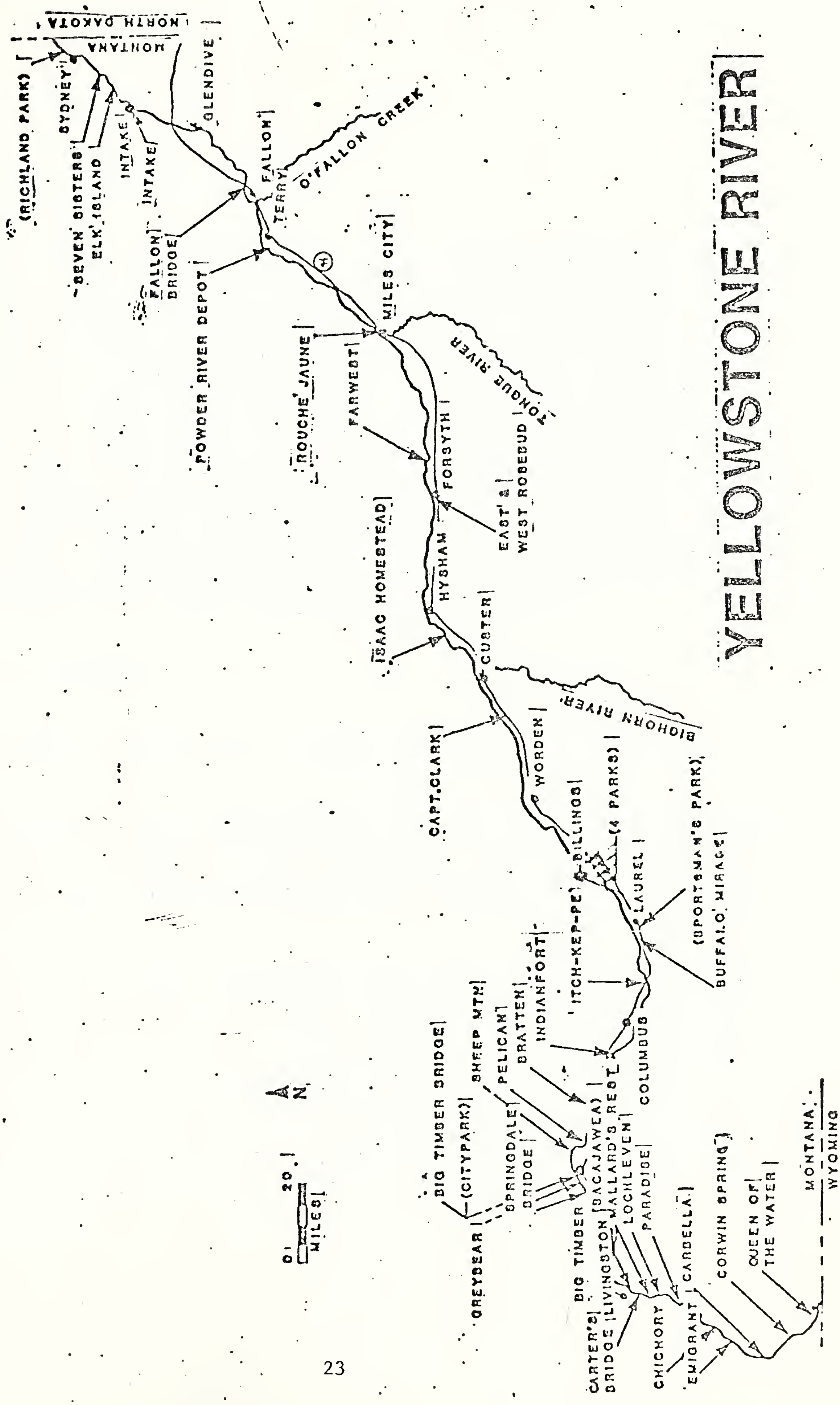
3.3.8. Recommendations

1. Explore the possibility of multiple land use agreements on the State land sites in the critical access region.

2. Give priority to those sites having extensive shorelines which can be waded by fishermen. Bank fishing requires a lengthy shoreline or the site will soon be "fished out" and abandoned by fishermen.

3. Develop more facilities for camping on public land at feasible sites along the entire length of the river. Route 12 is a popular travel route through central Montana.

4. Identify other desirable bank fishing sites which are on private lands within the critical region. Approach the private landowners and determine their willingness to negotiate land trades or recreational easements.


YELLOWSTONE RIVER

3.4. YELLOWSTONE RIVER

3.4.1 Description of the River

The Yellowstone River emerges from high mountains, rugged canyons and narrow gorges in northern Wyoming. It flows approximately 130 miles and makes a one mile vertical drop before reaching the northern border of Yellowstone National Park at Gardiner, Montana. From here, it flows north to Livingston through the broad Paradise Valley, which is flanked by the Gallatin and Absaroka Mountain Ranges. At Livingston, the river cuts east through the last of the western mountain ranges and braids its way out onto the plains. The river covers approximately 500 miles from Gardiner to Sidney, Montana near the North Dakota border. It moves swiftly past bluffs, outcroppings and prairie, carving islands through ten counties. Numerous unique characteristics of the Yellowstone River make it a nationally renowned river. It is the longest free flowing river in the contiguous United States. In addition, as a natural highway, it played a vital, historic role in the exploration and settlement of the northwest. Fishermen from across the country are lured by its reputation as a superb "Blue Ribbon" fishery.

3.4.2 Land Use

The upper Yellowstone River through Paradise Valley is bordered mainly by irrigated cropland, hay, pasture and extensive rangeland.

Suburban tracts are found scattered along the banks at various points. Near Gardiner there is a cluster of at least three mining sites. Other isolated sites extend north to Livingston. Recreational land use is abundant on this stretch of the river, dotting islands and shoreline. Peripherally, the mountains sustain vast commercial and non-commercial forest lands.

At Livinston, urban and industrial land uses prevail. To the east of Livingston, a mixture of dry and irrigated cropland prevails. Some forest land persists at the river banks and on islands. Evidence of urban development exists at least every 40 miles to the North Dakota border. Billings is the largest and most concentrated urban center, with heavy industry, utilities and rural subdivisions. Between urban centers, rangeland and dry and irrigated cropland can be found in mixed bands along the banks. Recreational land use is most apparent around Billings and from Glendive to Sidney. Interstate highways and other major roads weave back and forth across the length of the river.

3.4.3 Water Characteristics

Overall, the Yellowstone River has fair water quality suitable for bodily contact. In the upper reach from the source to Livingston, the water quality is excellent. This stretch is characterized by clear waters and first class cold water fisheries. Some mining and agriculture activity along this stretch present point pollution problems.

There is a transition zone from a cold to warm water fishery between Columbus and Custer. This is due to a decrease in land gradient, and an increase in water temperature and amounts of total dissolved solids (TDS).[4] Warm water fisheries are generally considered to be of poor quality. However, warm water fish are abundant despite increased siltation. Hazardous pollution problems are associated with the big cities on the Yellowstone. Oil refineries, meat processing plants and domestic uses have degraded the Yellowstone, particularly around Billings. Although siltation and degrading agricultural effects continued downstream, the water quality near Sidney improves over mid-stream ratings. By one crucial water quality parameter, called total dissolved solids (TDS), Sidney has "less than the recommended upper limit for drinking water most of the year".[5] The fisheries rating increases here too. The Yellowstone offers a wide variety of boating experiences which are best outlined in the Floaters Guide to Montana. Seasonal water flows can greatly affect recreational opportunities. This is particularly true in the plains where water supply may be so low due to agricultural diversion that fisheries populations are harmed. The following water flow table for Summer 1980 reflects typical patterns and conditions.

TABLE 1

TOTAL ACRE FOOT VOLUME PER MONTH/MEAN CUBIC FEET PER SECOND

	May	June	July	August	September
@Corwin Springs	412000/6701	490100/8237	313200/5093	164500/2675	129700/2180
Livingston	463200/7533	551300/9264	345300/5615	187100/3043	161700/2717
@Billings	1118000/18190	1277000/21460	605800/9852	255700/4158	325400/5468
@Forsyth	112600/18310	1443000/24250	889500/14470	411500/6693	513500/8629
@Miles City	1100000/17900	1480000/24870	907900/14770	425600/6922	536700/9020

3.4.4 Landownership Issues

Approximate percentages of landownership along the Yellowstone are as follows. Note: Island ownership has not been included in these calculations.

TABLE 2

Entire River

State	7%
Forest Service	1%
National Park	2%
U.S. Range Livestock Experiment Station	2%
Reservation	*
BLM	11%
Private	77%

* Less than ½%

Wyoming Border - Big Timber

State	4%
Forest Service	4%
National Park	10%
BLM	4%
Private	78%

Big Timber - Billings

State	6%
BLM	4%
Private	90%

Billings - North Dakota Border

State	8%
Reservation	1%
U.S. Experiment Station	3%
BLM	15%
Private	73%

These figures show that public agencies manage less than 25% of the land along the length of the river. Parcels tend to be isolated and have limited shoreline with two exceptions: National Park land at the Montana/Wyoming border and the U.S. Range Livestock Experiment Station at Miles City.

Resource managers in different areas report varying attitudes among private landowners concerning recreational use of the Yellowstone. In the upper stretch, both private landowners and public resource managers have an increased concern for trespassing, littering, and off road vehicle use which results from the rise in number of users. This concern extends east to Billings where island use conflicts have predominated. Further east, where population pressures are not as great landowners are more likely to accept present use. They recognize the Yellowstone provides the central water based recreational opportunity for many miles. There is the question of whether these landowners will perceive the situation differently and with more caution if anticipated population growth occurs with energy development as in the Tongue River area.

3.4.5 Recreational Uses and Visitation

In 197576 extensive recreational research was conducted along the Yellowstone from Big Timber to the North Dakota border by the Montana Department of Natural Resources and Conservation (DNRC), Water Resources Division. The results, presented in a technical report, address "The Effect of Altered Streamflow on Waterbased Recreation on the Yellowstone River Basin, Montana."

Recreational activity preferences were assessed by questionnaire, ground and aerial observations during the summers of 1975 and 1976. Car counters were used to estimate total use at six sites in 1976.

Visitation

The car counter data reported in the above study serves as a comparison to current car counters or manager estimate enhancements reported by the MDFW&P for the same sites during the summer of 1980.

TABLE 3

Dates	Site	Visits (# of people)
5/5 - 9/8 1976	Intake FA	31,315
6/25 - 9/5 1976	East Rosebud Resource Area	27,769
7/8 - 9/8 1976	Indian Fork FA	4,301
2/16 - 9/8 1976	Itch-Key-Pe FA	4,236

Source: DNRC

Dates	Site	Visits (# of people)
5/24 - 9/30 1980	Intake FA	39,875
5/24 - 9/30 1980	East Rosebud FA	30,000
5/24 - 9/30 1980	Indian Fort FA	12,178
5/24 - 9/30 1980	Itch-Key-Pe FA	5,006

Source: MDFW&P

These figures show visitation increases of 27%, 8%, 183% and 18% respectively over the four year period. No specific irregularities were reported in the data collections for Indian Fort FA which might explain the overwhelming increase there.

Other traffic counter data reported by the MDFW&P for May 24 through September 30, 1980 allows comparisons of the popularity of particular stretches or sites along the Yellowstone.

TABLE 4

Sites	Visits (# of people)
Queen of the Waters FA (near Gardiner)	816
Emigrant FA	3,264
Lock Lever FA	4,080
Mallard's Rest FA	6,528
Carter's Bridge FA	4,080
Springdale Bridge FA (near Livingston)	3,259
Sheep Mountain FA	3,264
Grey Bear FA	9,401
Big Timber Bridge FA	3,044
Pelican FA	6,089
Indian Fort FA	12,178
Itch-Key-Pe FA	5,006
Buffalo Mirage FA	24,702

Isaac Homestead FA	3,465
West Rosebud RA	11,000
Fallon Bridge	4,331
Elk Island FA	9,000
Seven Sisters FA	4,331

Source: MDFW&P

Additional information from a Fishing Pressure Survey by the MDFW&P estimates 144,878 fishermen used the river from May 1975 through April 1976. Stillwater County and a portion of the adjacent Yellowstone County are reported to have had only about 11% of this pressure. At least three fishing outfitters are known to float the upper Yellowstone two times a day during the regular season.

Activity Preferences

A summary of findings from the DNRC study showed:

1. Most people were day users not on vacation

2. Seventyfive percent were instate residents

3. A variety of recreational use patterns existed among the five study sections of the river. In 1976, fishing was the preferred activity overall. Rest and relaxation was second. Swimming and Boat/Floating were third; picnicing fourth. However, where these activities were broken down by section it was apparent that recreationists on the five separate sections participated in these activities in a different order. For example, Table 5 shows that rockhounding was the second most preferred activity among those observed in Section 5. Swimming was most preferred among those observed in Section 2.

TABLE 5

1976 Observations

Section	1	2	3	4	5
	Big Timber to Clarks Fork of Yellowstone River	Clarks Fork to Big Horn River	Big Horn to Tongue River	Tongue River to Powder River	Powder to North Dakota
Swimming	10%	37%	5%	0%	0%
Picnicing	15	11	5	0	3
Rest & Relaxation	23	16	25	20	17
Boating	20	1	5	11	9
Horseback Riding	0	1	0	0	0
Bicycling	0	4	0	0	0
Motor Biking	1	4	1	0	0
Driving for Pleasure	1	1	1	0	0
Playing Outdoor Games	4	4	6	6	6
Rockhounding	1	1	1	6	25
Sightseeing	0	4	1	0	0
Walking for Pleasure	0	0	0	0	0
Water Skiing	0	0	0	0	0
Bird Watching	0	0	1	0	0
Fishing	26	17	51	56	39
*Percentage of all people observed	36	18	29	6	11

* Sec. 1=462 people; Sec. 2=226; Sec. 3=374; Sec. 4=79; Sec. 5=139
Total of 1280 people

Source: DNRC

Reports from resource managers in 1980 substantiate fishing (or floating for the purpose of fishing) as the most preferred recreational use for all sections. Recreational boating/floating has ranked second with hunting and rockhounding ranking third from Billings--east. The difference in the second place rankings from the 1976 study to 1980 may be that rest and relaxation is not usually considered an "activity" and therefore may have been overlooked by resource managers as an activity preference.

Fisheries and Wildlife

The following table illustrates the MDFW&P fishery resource ratings for the Yellowstone River.

TABLE 6

Yellowstone National Park to Columbus	Rating 1 - Highest value fishery resource
Columbus to Park to Park City	Rating 3 - Substantial fishery resource
Park City to Laurel	Rating 2 - High priority fishery resource
Laurel to Billings	Rating 4 - Moderate fishery resource
Billings to Big Horn	Rating 3 - Substantial fishery resource
Big Horn to North Dakota line	Rating 1 - Highest value fishing resource

Several varieties of trout and whitefish are abundant in the cold aquatic environment of the Yellowstone National Park to Columbus region. As the river flows through the "transition zone" from Columbus to Bighorn, warm water species predominate. Paddlefish, sturgeon, ling, burbot, walleyes, pike, and catfish contribute to the excellent fisheries ratings on the easternmost stretch.

Gamebirds and waterfowl are plentiful in the Yellowstone River region. Sand bars and islands provide excellent habitat and breeding grounds away from some natural predators. Pheasants and grouse are two upland species that are prevalent in the area and popular among hunters. Big game varies from the mountain regions of the west to the plains in the east. In the west, deer, antelope, bear, moose, elk, coyote, bobcats and small furbearing animals are examples of the variety found along the river and in the mountains. Hunting is best on the southwest slopes. The plains provide primarily for deer, antelope and a few bighorn sheep. Other big game like elk, moose and grizzly bear once roamed this region but have relinquished this habitat to whitemen. Grouse, pheasants, partridge, and turkeys inhabit the plains and provide excellent hunting.

3.4.6 Existing Accesses

In recent years the MDFW&P has been quite successful in increasing the number of accesses to the Yellowstone River. The greatest concentration remains in the upper Yellowstone. Below is a list of all MDFW&P fishing accesses, or recreation areas as one would come across them traveling from the river's source to mouth.

TABLE 7

Site	Facilities
Queen of the Waters FA (near Gardiner)	Pack in-pack out
Corwin Springs FA	Pack in-pack out
Emigrant FA	Toilets, picnic, pack in-pack out
Chichory FA (new site)	Pack in-pack out
Paradise FA	Toilets, picnic, pack in-pack out
Lock Leven FA	Boat access, toilet, drinking water, camping, picnic
Mallard's Rest FA	Boat access, toilets, drinking water, camping, picnic, pack in-pack out
Carter's Bridge FA	Boat access, pack in-pack out
Sheep Mountain FA (near Livingston)	Toilets, picnic, pack in-pack out
Springdale Bridge FA	Boat access
Grey Bear FA	Toilets, camping, picnic
Big Timber Bridge FA @ Big Timber	Pack in-pack out
Pelican FA	Boat access, camping, picnic
Bratten FA	Toilets, camping, picnic
Indian Forts FA	Boating access, toilet, drinking water, camping, picnic
Itch-Kep-Pe FA (near Columbus)	Boat access, toilets, drinking water, camping, picnic

Buffalo Mirage FA	Camping, picnic
Captain Clark FA	Pack in-pack out
Isaac Homestead FA	Pack in-pack out
West Rosebud RA	Boat access, toilets, camping, picnic
East Rosebud RA	Toilets, drinking water, camping, picnic
Far West FA	Boat access, camping, picnic
Roche Jaune RA (at Miles City)	Boat access, pack in-pack out
Doeden's Island (new site authorized	for purchase; transaction not yet complete)
Powder River Depot State Monument	Pack in-pack out
Fallon Bridge FA	Boat access, pack in-pack out
Eagle Ranch (new site authorized for purchase; transaction not yet complete)	
Intake FA (at Intake)	Boat access, toilets, drinking water, camping, picnic, shelters, interpretive devices
Elk Island FA	Boat access, pack in-pack out
Seven Sisters FA	Pack in-pack out

Source: MDFW&P

The BLM maintains one recreation area on the Yellowstone below Tom Miner Bridge: Carbella. Boating access is available and hunting, fishing, and hiking are activities which may be enjoyed on this site.

Also in this vicinity, the Forest Service has two sites. One, La Duke Springs, is on the western shore and provides picnicing and fishing opportunities. The other at T8S, R7E, Section 3/4 is believed to be unnamed but provides a road turn around with boating access and fishing opportunities. Other Forest Service land bordering the river is undeveloped and extremely limited but open to the public.

Legal public access to the river is also available at several city and county recreation areas and parks. These locations are as follows:

- at Livingston: Sacajawea Park
- at Big Timber: City Park
- at Laurel: Sportsman's Park
- at Billings: Coulson Park
  Two Moon Park
  Josephine Park
  Riverside Estate Park
  plus city/county islands
- Between Sidney and Fairview: Richland Park

Facilities at these sites vary greatly although all provide fishing opportunities.

Two KOA Commercial campgrounds have been identified 15 miles south of Livingston and at Miles City.

Several bridges are known to be in use at or near Greycliff, Huntley, Hysham, Terry and Glendive although the legalities are uncertain. In addition, there are unpublicized diversion dams and flood dikes at Huntley, between Pompey's Pillar and the Big Horn River (WACO Division) and at Miles City. These are popular sites which are extremely dangerous and should always be portaged by floaters. Legalities are in question here too.

Islands

Islands are a key issue on the Yellowstone. They provide camp sites for floaters and excellent waterfowl hunting. Ownership varies and has not been documented here. However, conflicts do exist. Island ownership information is scarce due to difficulties in expressing it on large scale maps. One solution is to post public islands and make narrative statements of location on island recreation maps. Public islands are available for camping and hunting; the public is just not sure where they are.

3.4.7 Access Needs

All resource managers felt that additional access sites are necessary on the Yellowstone. They also generally agreed that public land owned by either the state or BLM was available but was either unidentified for recreational use or undeveloped and not posted.

The needs suggested for the upper Yellowstone and far eastern section, from Rosebud to the North Dakota border, are in response to present demands from particular user groups, e.g. bank fishermen and those requiring boat ramps. The needs suggested for the middle Yellowstone, from the Springdale bridge to the Big Horn river, are in response to projected future demands from the Billings area.

The specific sections referred to are listed before. These are included in or overlapped with two stretches identified in the 1977 DNRC study: from Columbus to Hysham and near Forsyth to O'Fallon Creek. The potential recreation sites noted in the DNRC study have been included here with those inventoried by the state and suggested by resource managers.

1. Yellowstone National Park line to Dome, Montana--bank fishing
2. Livingston to Springdale--bank fishing, day use sites
3. Huntley to Custer--around Worden area
4. Rosebud to North Dakota border--boat accesses.

The first of these is in the prime Blue Ribbon fishery, south of Yankee Jim Canyon. The Forest Service owns some land in this section and at one time tried to buy land on the west side. Attempts were unsuccessful for unknown reasons. Efforts should be made to reopen negotiation with the Forest Service or other public agencies. The land remains a valuable bank fishing resource.

The second section from Livingston to Springdale has three publicly owned sites which are reported to have substantial recreational potential as determined by land characteristics and length of shoreline. These are:

Ownership	Legal Description of Location	Notes
BLM	T1S R10E SEC 24/25	
State; high water and vegetation scores near 4 major roads on the state recreation evaluation system (RES)	T1S R11E SEC 36	
BLM	T15 R12E SEC 32/33	Buffalo Hump; has road access; excellent campsite possibilities; previously recommended for development in 1968 BLM Yellowstone River Study; No action taken.

The third section, Huntley to Custer, requires some special attention to the area around Worden. Below is a list of three recommended sites which are evenly spaced along the shore between Worden and Custer.

Ownership	Legal Description of Location	Notes
BLM	T3N R29E SEC 34/35	NE of Worden, city road access exists however private landowner dispute road ownership.
BLM	T4N R32E SEC 31	No legal access problem. State owns adjacent section. Steep banks, deep holes for walk-in bank fishing
BLM	T5N R33E SEC 27/34/33	Easternmost corner good for boat ramp.

Source: BLM Bilings Resource Area

In the final river stretch from Rosebud to the North Dakota border there are four state land sites which require investigation. No site specific inventory information was available from the BLM for this section. However, inspection of surface ownership maps reveal considerable holdings along the river which need to be explored for present or future development.

Ownership	Legal Description of Location	Notes
State; Class B or above lands on major water bodies w/access as rated by the Recreation Evaluation System (RES)	T19N R57E SEC 25/36	Lengthy shoreline property.
State; high water and vegetation scores near a major road per (RES)	T17N R55E SEC 36	Lengthy shoreline includes partial ownership of nearby islands.
State; historical and archeological sites per (RES) with moderate land characteristic ratings	T19N R58E SEC 16	
Private		10 miles east of Miles City

Sources: MDFW&P and DNRC

In the future, other access sites may be needed on stretches of the river which have not been singled out in this study. Below is a list of BLM, State and Private sites which are reported to be of recreational significance. These might be considered at a future time.

Ownership	Site	Notes
BLM	T3S R22E SEC 3,4,5	Young's Point; has road access; excellent campsite and boat ramp possibilities previously recommended for development in 1968 BLM Yellowstone River Study. No action taken.
State; high water and vegetation scores near a major road per (RES)	T6N R42E SEC 16	West of Rosebud on north and south shores
	T7N R36E SEC 36	Northeast of Hysham
	T1S R75E SEC 25/36	Southwest of Billings both sides of river
Private		Adjacent to MDFW&P Isaac Homestead Game Management Area near Hysham

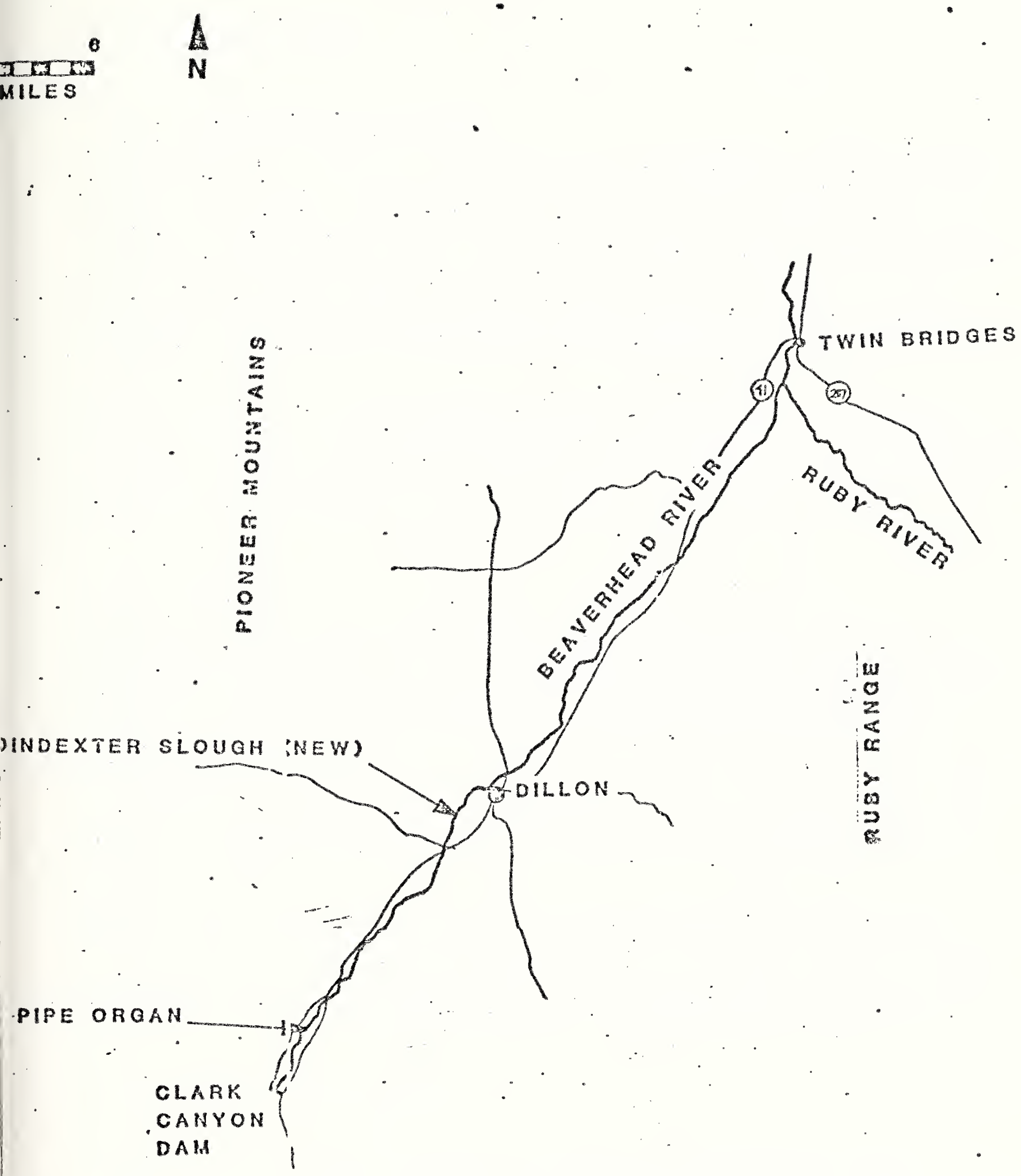
Sources: MDFW&P, BLM, DNRC

3.4.8 Recommendations

1. Develop those lands within critical regions which are currently in public ownership. Focus on sites with identified recreational potentials and road access before approaching private landowners for easement or exchanges. It is recognized that particular public land sites will require easements or exchanges in order to gain road access. The exact sites are specified under Access Needs.

2. Develop management objectives to thoroughly address the issues of islands. Consider a separate informational guide to public islands of the Yellowstone. Clearly designate public islands and the uses they are to be managed for in the guide. Plainly post the islands themselves to correspond to the literature. A clear definition of the availability and use of islands may alleviate boat camping pressure on the shorelines and encourage a different quality of experience among floaters. The BLM has already compiled extensive resource inventory information on the islands managed by the BLM for Wilderness review purposes.

3. Select a number of sites with historical and archeological significance which can be developed in conjunction with river access. The enjoyment that out-of-state recreationists receive on the Yellowstone may be enhanced by interpretive signs and exhibits at particular sites. They may help to extend the national reputation of the Yellowstone beyond the "Blue Ribbon" fishery regions and redistribute use to some degree.



BEAVERHEAD RIVER

3.5 BEAVERHEAD RIVER

3.5.1 Description of the River

The Clark Canyon Reservoir and Dam mark the beginning of the Beaverhead River. From here it flows northeast in a braided, serpentine fashion for about 50 miles, at which point, it joins the Ruby River and gives rise to the Jefferson River. The upper stretch of the Beaverhead, south of Dillon, winds through a scenic canyon region. The rugged hillsides are scattered with brush which thickens at the shoreline to impede camping. The swiftness of the river has undercut the brush, creating deep drop offs and pools where trout are plentiful.

Before Dillon, the river opens out on to a broad valley for the remainder of its course. The forest covered Pioneer and Ruby mountain ranges break the horizon to the east and west. Beaverhead Rock, a state monument, which is recognizable as a swimming beaver, can be seen on the western shore north of Dillon.

3.5.2 Land Use

Land use mapping has not been completed by the Montana Department of Community Affairs for either Beaverhead or Madison counties which encompass the river. The following land use information has been compiled from range and vegetation type information included in the BLM Mountain Foothills Environmental Impact Statement and from key informant summaries.

The uppermost stretch of the river from the Dam and Rattlesnake Creek combines extensive sagebrush and grassland to provide grazing land for cattle. Limited forest covers the mountains to the southeast of the river corridor.

North of Rattlesnake Creek to the river's junction with Ruby River, the predominant land use is irrigated cropland. Beyond the cropland lies vast stretches of grassland. The entire length of the river is marked by a major road which is paralleled by a railroad from the dam to Dillon. Dillon is the only urban and suburban region along the river.

3.5.3 Water Characteristics

The Montana Water Quality Bureau classifies the Beaverhead River as suitable for drinking, swimming and recreation activity. However, it is unappealing because of a cloudy appearance caused by natural siltation and degrading agricultural practices.

Water flow is regulated by the dam; consequently unseasonable water conditions can be experienced. During the spring when heavy unfloatable flow rates are expected, the Beaverhead presents good floatable conditions. As summer progresses, floating may be marginal to impossible depending on the extent of agricultural use and rainfall. In the fall, great quantities of water are released from the dam and floating may be hazardous. Stream guaging information supplied by the USGS for the summer of 1980 is representative of usual flows. These are shown in the following table.

TABLE 1

TOTAL ACRE FOOT VOLUME PER MONTH/MEAN CUBIC FEET PER SECOND

Station	May	June	July	August	September
Grant	18010/293	33610/565	42050/684	44420/722	24970/420
@Barrets	34820/566	55420/931	53800/875	47980/780	30620/515
Dillon	7940/129	34090/573	11580/188	14010/228	26450/445

Source: U.S. Geological Survey, Billings

In the upper section, the recreational floater is confronted with hazards other than excessive flows. The swiftness of the water in all seasons can present the unskilled boater with difficult, narrow turns. Low bridges, barbed wire and diversion dams present other obstacles. North of Dillon, the water meanders more slowly and floating becomes easier.

3.5.4 Landownership Issues

The table below shows the relative ownership percentages along the Beaverhead.

TABLE 2

State	3%
BLM	2%
Private	95%

It is clear that there is little public land available for access development.

Resource managers explain that the number of users has increased substantially in recent years and private landowners are beginning to react to the use pressures. There is a legal suit in process at this time brought on by an upstream landowner who has attempted to obstruct float passage over his land after 20 years of established use. The question that the courts must decide on is an important one concerning the definition of "navigability". If the Beaverhead River is determined to be "navigable" by law, then the river bottom which is presently owned by the adjacent landowner (to the center of the stream) will belong to the State. Float passage will then be guaranteed over this public land. A decision on this "test case" is expected in November 1981 with implications for the settlement of other similar private landowner/public recreational river conflicts.

3.5.5 Recreational Uses and Visitation

Visitation

Although resource managers testify to heavy demand and use on the Beaverhead, the only available quantifiable data is from MDFW&P traffic counters at two access sites and a MDFW&P fishing pressure survey. These figures show a total of 9,781 visits during the 1980 summer months at the accesses and a total of 14,152 fishermen who fished the Beaverhead in 1975-76. The Fish and Game estimates that fishing pressure has increased one man per day since 1976. This makes the 1980 total 15,612.

TABLE 3

Dates	Site	Visits (# of people)
May 24-Sept. 30, 1980	Pipe Organ FA	3,264
May 24-Sept. 30, 1980	Poindexter Slough FA	6,517

Source: Montana Department of Fish, Wildlife and Parks

Outfitters reportedly provide single-day, float fishing trips for non-locals who require equipment and expertise. They generally put in at High Bridge and take out at Pipe Organ or above.

Activity Preference

Fishing is ranked as the number one activity on the Beaverhead. However, there is disagreement as to whether bank fishing or float fishing is most prevalent. Floating to hunt is mentioned as another relatively

popular activity, while recreational floating is referred to as minimal.

The Beaverhead is primarily a day use recreation area. The absence of camping is explained by the density of willows on the shoreline, and the lack of excitement in extended floats.

Fisheries and Wildlife

The popularity of fishing on the Beaverhead is enhanced by the tales of large trout catches. The following MDFW&P fisheries resource classifications show that the river stretch from Clark Canyon Dam to Grasshopper Creek is the highest fishery resource value. Number one reflects the highest rankings for habitat, species and sport fishery potential in this cold water region.

TABLE 4

Clark Canyon Dam - Grasshopper Creek	1
Grasshopper Creek - Stodden Ditch	2
Stodden Ditch - Mouth	3

Source: MDFW&P

As the river flows downstream, the popularity of the fishery decreases with its rating. Reasons for this are that fish populations are smaller and the fish don't grow as fast. However, resource managers are quick to point out that if the lower stretch was not held in such great contrast to the exceptional upper stretch then it too would be a popular site.

An array of large animals inhabit the high mountainous areas surrounding the dam, however, hunting is most popular north of Dillon where deer and antelope are found in abundance. As mentioned previously, duck hunting is a preferred activity pursued along the entire length of the river.

3.5.6 Existing Access

Five frequently used accesses exist in the area from the dam to Dillon. The two found in the table below are maintained by the MDFW&P.

TABLE 5

Site	Facilities
Pipe Organ FA	Pack In-Pack Out
Poindexter Slough FA	Pack In-Pack Out

Two other sites are found at Barrett's Diversion Dam operated by the Bureau of Reclamation and at the Clark Canyon Dam operated by the Montana Department of Natural Resource and Conservation.

Bridge sites comprise the remainder of all accesses to the upper or lower sections of the river. High Bridge, near the reservoir has extensive popular use, however, the legalities are uncertain.

3.5.7 Access Needs

Although the upper Beaverhead already has the greatest number of accesses, it is reported to be the high priority area for new acquisitions. In particular, the distance between High Bridge and the old Henneberry Bridge, south of Pipe Organ, is mentioned. This land is all privately owned.

The lower river, from Dillon to Twin Bridges, is reported to have public access needs as well, however, the overwhelming existance of private land has caused resource managers to focus their attention elsewhere.

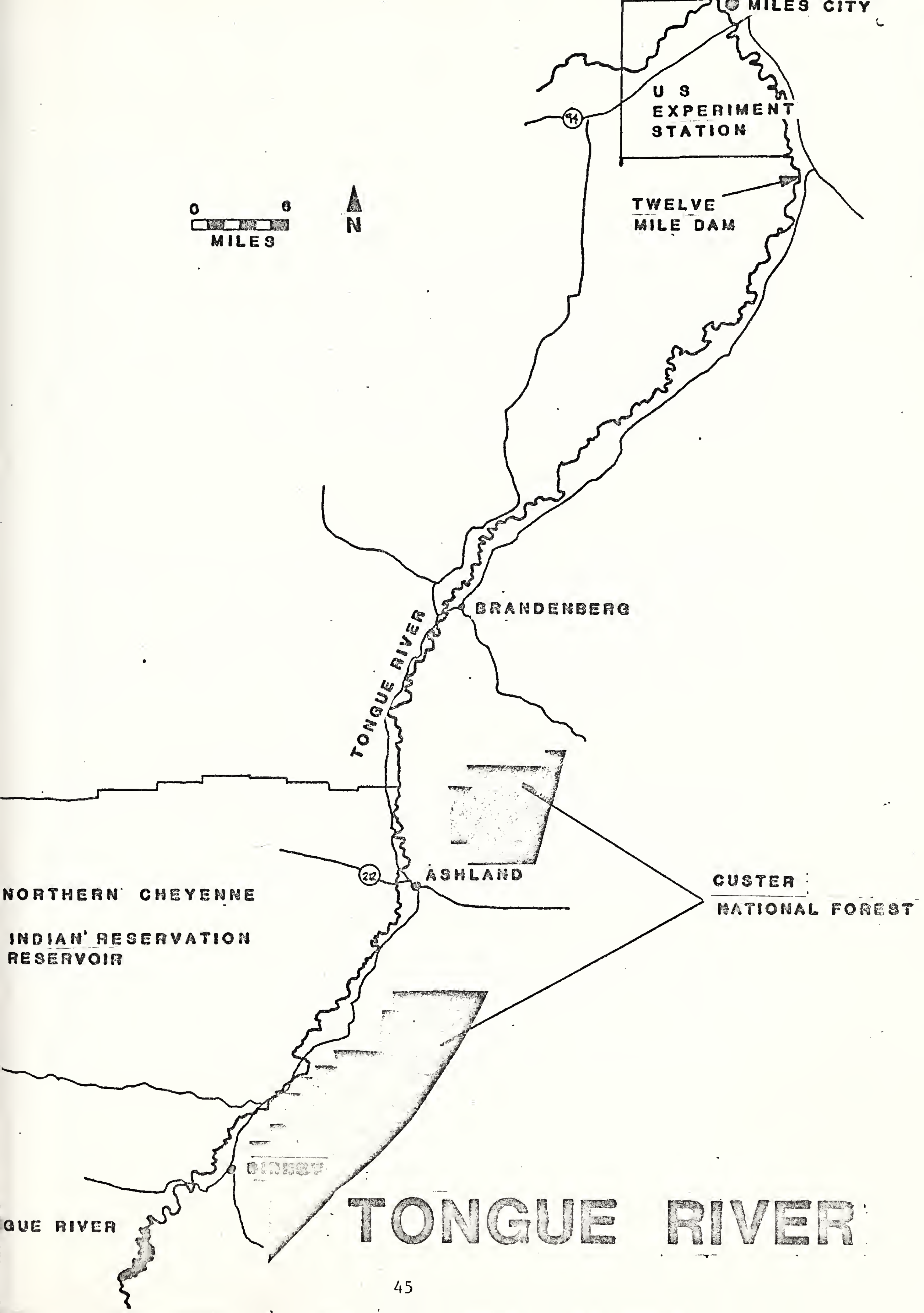
Bank fishing sites with lengthy shorelines are mentioned most often in terms of type of access.

3.5.8 Recommendations

1. Verify the legality of the High Bridge access point which is so heavily used. Negotiate an easement or exchange with the adjacent private landowner to guarantee continued access opportunities.

2. Identify the private landowners with holdings between High Bridge and Henneberry Bridge. Assess their willingness to negotiate easements or exchanges of those lands with known recreational value.

3. Map the established use accesses in the lower stretches which have high total recreational value. Attempt to discern whether use and demand is static or growing at a comparable rate to that of the upper river.



TONGUE RIVER

3.6 TONGUE RIVER

3.6.1 Description Of The River

The Tongue River flows northeasterly from its headwaters in Wyoming to a confluence with the Yellowstone River approximately 175 miles downstream at Miles City. This path is interrupted by the Tongue River Dam which forms a 69,000 acre foot reservoir in Montana close to the Wyoming border. North of the dam the river meanders through a narrow canyon before entering rolling plains. These plains are characterized by numerous distinct features such as deep gullies, sandstone escarpments and visible coal seams. The river itself forms the eastern border of the Northern Cheyenne Reservation. The water is slow moving, reflecting the quiet, unhurried and undeveloped nature of the surroundings. The Tongue River is relatively undiscovered as a recreational setting except in the vicinity of the reservoir and at the mouth.

3.6.2 Land Use

The course of the river runs through three counties. Land use mapping has not been completed for Big Horn or Custer Counties. However, Rosebud County maps illustrate land use configuration characteristic of the entire length of the river. County roads connect five very small urban centers along the river. Irrigated and dry cropland is found in a narrow band adjacent to the river lands. Rangeland, the primary land use, extends far beyond that, except in the forested highlands of the Custer National Forest to the east. The forest comes within a few miles of river from Birney to Ashland. The Tongue River Reservoir supports major recreational land uses.

3.6.3 Water Characteristics

Water quality of the Tongue River is generally considered best south of Prairie Dog Coulee. From here, north drainage runoff increases the degradation of the water due to present agricultural and grazing practices. Overall, the water is rated suitable for bathing, swimming and recreation by the Montana Water Quality Bureau. Water treatment is necessary for drinking and food processing. However, irrigation is the only consumptive use of the water by local communities.

One of the largest concerns for the Tongue River is that the water flow and storage capacity just meets the present needs of the communities. And yet, numerous coal companies owning land are expected to develop in this area. Solutions to the ensuing water supply problem are being sought.[7/] It is apparent that reduced flow would adversely affect fish population and other recreational opportunities on the river. The following 1980 water flows show typical discharges for the summer months.

Table 1

TOTAL ACRE FOOT VOLUME PER MONTH / MEAN CUBIC FEET PER SECOND

	May	June	July	August	September
@ State Line	49110/799	57490/966	11180/182	5460/88.7	8980/151
@ Tongue River Reservoir	26530/431	54050/908	29160/474	23030/375	17060/287
@ Birney Day Sch. Br.	26680/434	56190/944	29170/474	24570/400	19590/329
Brandenberg Br.	22540/367	49790/837	24930/405	23080/375	18930/318
@ Miles City	9150/149	40100/674	11850/193	9720/158	11620/195

Source: USGS

Presently, the Tongue River provides easy, leisurely floating and fishing opportunities. Cables, barbed wire and irrigation facilities can be obstacles.

3.6.4 Landownership Issues

Eighty-five percent of the land is privately owned; 9 percent is owned and operated as a U.S. Range Livestock Experiment Station, while the State and BLM each have 3 percent ownership. Recreationally, however, the ownership patterns restrict public access to the river. Public recreation is almost entirely confined to the reservoir.

Resource managers in the area have expressed two particularly interesting problems that relate to ownership and social factors. One was an example of a landowner who was inclined to offer land to the MDFWP but did not want Indians to know or be able to use it. Another problem is concern over the development of mines. The proposed mining projects would require railroad transportation. It was speculated that railroads, as a rule, do not grant easements and if the tracks followed the county road parallel to the river it would be difficult to get crossings for recreation purposes.

This topic requires much further investigation but it would appear that river recreational accesses established before the building of the railroad might establish a prior use precedence.

3.6.5 Recreational Uses And Visitation

Visitation

Although recreational survey data for the Tongue River is nonexistent, limited visitation information is available. Fishing pressure data reported by the MDFWP for 1975-1976 estimates 6,049 fishermen used the reservoir,

while a total of 11,146 fished the river itself. Also, traffic counter data available for the MDFWP Twelve Mile Dam FA reports 4,331 visitors. No outfitters or guides are known to operate on the Tongue River.

Activity Preferences

Resource managers rank fishing as the most preferred recreational activity. Floating and hunting are ranked a distant second. No others were mentioned.

Fisheries and Wildlife

MDFWP fisheries resource ratings for the Tongue River divide it between a High Priority Fishery Resource (2) and a Substantial Fishery Resource (3) as shown below.

Table 2

Wyoming/Montana border - Tongue River Dam	3
Tongue River Dam - Beaver Creek	2
Beaver Creek - T&Y Dam	3
T&Y Dam - mouth	2

Source: MDFWP

The reservoir is a popular sport fishery. The water below the dam has Montana's only population of rock bass and a self-sustaining small mouth bass fishery. Other popular warm water fish present in the Tongue are paddlefish, sturgeon and northern pike. Fishing is best in April, May or September when the waters are free of algae.

Mule and whitetail deer and antelope are the most common big game species found in the uplands. Furbearing animals, such as beaver, birds and waterfowl are found in abundance at the water's edge.

3.6.6 Existing Access

There are only two legal public accesses on the Tongue River, 175 miles of water. The MDFWP maintains one of these at Twelve Mile Dam near the mouth of Pumpkin Creek. At this site, there are two picnic tables and two fire pits. There is no boat access. The other site is operated by the Montana Department of Natural Resources and Conservation at the base of the Tongue River Dam. Additional access may be gained from bridges and from county roads, although the legalities are uncertain. County Clerks report there are no city or county campgrounds along the river, although there is one known private fee campground at the reservoir.

3.6.7 Access Needs

Although the Tongue River is currently underutilized, resource managers claim there is definite demand for additional accesses. MDFWP managers report their priority is to develop bank fishing and/or camping sites every 20 miles along the river. This would require 3 new sites in the high priority fishery section between the Tongue River Dam and Beaver Creek. A second priority stretch should be identified from Twelve Mile

Dam to the mouth. This stretch is closest to the urban center of Miles City and could provide several new recreational opportunities. If at least one float/boating access were available, Miles City residents could put in there to float home.

Both the BLM and the state own upland lands with narrow stretches of private land between them and the river. Specific privately-owned sites which would open up to State or BLM lands with high recreational value need to be identified.

3.6.8 Recommendations

1. Map all obvious access points at bridge and county roads which run close to the river. Negotiate land trades or easements with the private landowners to obtain legal accesses at these points.

2. The Forest Service presently has no land on the river but could enhance the recreational value of the Custer National Forest by acquiring lands to the river near Birney.

3. Establish more recreational accesses along the Tongue prior to the proposed energy development. This accomplishes two objectives by guaranteeing opportunities for those who presently enjoy the river and planning for the future recreational pressures from expanding communities.

4. RECOMMENDATIONS AND CONCLUSIONS

There are no "recreation standards" for rivers which suggest how far apart boat ramps should be or how many fishing accesses there should be per mile. River planning would be easier if there were such standards because simple formula could be applied according to the desired quality of experience. However, each recreational setting is the total of different and sometimes unknown environmental and social factors. Recreation research is unable to account for all these factors and recommend appropriate methodology at this time. In the absence of generally accepted formula which may ultimately be restricting and inflexible, river managers must carefully consider the quality of experience they wish to preserve and depend on their professional judgment in developing strategies to accomplish their goals.

Management which is founded on the premise of providing a particular quality of experience requires comprehensive management plans which are agreed upon by all public agencies with jurisdiction for a specified river. Instead of executing separate programs with related, but different, goals and objectives public agencies could provide a better, more effective public service by collectively recognizing and defining their long term goals for the management of river resources.

The recommendations for this study are divided in to two categories. One category deals with specifics related to the study areas. The second addresses the broader issues of a cooperative river recreation management effort among public resource management agencies.

Study Area Recommendations

1. Regions of critical access needs have been identified in the text. These areas must be given priority for future access site development and/or land acquisitions.

    A. Develop and/or acquire popularly used sites first.

    B. Assess the potential for developing sites where county roads and bridges meet the river.

    C. Investigate abandoned railroads along river banks for their recreational potential.

2. Land exchanges and/or easements will be considered the primary methods of acquisition.

3. Recreation inventories must be completed on all public lands on the river within critical regions. Data must include:

    A.

    1) An assessment of road access to the site and the names of adjacent landowners who would be involved in necessary easement or land exchanges;

2) An assessment of the environmental suitabilities for different levels of possible development; e.g., are soil conditions suitable for minimal road development or will a mudhole be created by repeated use and eventually inhibit use;

3) Pertinent information regarding historical or archeological sites which may be enhanced or impacted by recreational access development.

4. The MDFWP and other agencies must continue with investigations into possible multiple land use agreements allowing recreational easements on leased School Trust Lands.

5. The River Ranger program must be expanded to include other rivers. The benefits of river rangers are unquestionable. They play a key role in overall management by gathering user data, improving public relations and disseminating information and by enhancing the public image of management agencies.

A. Investigate the possibilities of engaging volunteers or college students enrolled in recreation management programs. Many college programs require field experience or internships in order to graduate.

Cooperative Management Recommendations

1. The BLM, as initiator of the program, must draw up a cooperative agreement which can be endorsed by all other public agencies. The purpose is to cooperate and coordinate efforts to develop river accesses through land exchanges and/or easements.

2. An Interagency Council must be formed to address the following issues:

A. Which rivers of major concern will be looked at in the next phase of the study.

B. Which agency is the most likely and suitable candidate to be lead agency on a particular river. Considerations are: Percentage of ownership on a river or section of a river; previous active commitment to management on the river; particular agency expertise in areas of political, social or economic concern surrounding a given river.

The Council's functions would include the following:

A. Make public statements regarding the purpose and objectives of the cooperative river recreation management program.

B. Engender public support, cooperation and feedback through public relations channels.

C. Review, make recommendations and, finally, approve comprehensive river management plans submitted by lead agencies.

D. Address the critical issue of posting on public lands. This has been a problem which continues to concern all agencies. Nearly all resource managers contacted in this study agreed that present posting is problematic. The questions are: How much posting is necessary? What kinds of signs and information must be made available? Is the public confused by too many different styles of posting? Is there a need for some degree of uniformity? The recommendations put forth here are for the Interagency Council to attempt to answer some of these questions and design an Interagency posting system to be used on all rivers with Interagency cooperative management.

3. Lead agencies must be established on all rivers to serve primarily as initiators of ideas and recommendations and to act as representatives of all agencies in particular situations.

A. Lead agencies will cooperate closely with other public agencies having jurisdiction on a particular river.

B. They will gather input from other agencies to be used in the formulation of a comprehensive river recreation management plan.

C. The lead agency is responsible for developing a comprehensive river management plan which must be agreed upon by all other agencies having jurisdiction on a river.

D. The lead agency does not have sole responsibility for the total management of the river. Special agreements may be made to relinquish management of one agency's holdings to another agency.

E. The lead agency acts as the representative for all agencies in initial contacts with private landowners. Once a willingness to negotiate is established, the particular agency involved in the easement/exchanges will become involved.

F. The lead agency takes the initiative in assessing private landowner attitudes, management preferences and willingness to cooperate with public agencies to provide for specified recreational experiences on a river.

G. The lead agency, in conjunction with other agencies takes the responsibility for developing public information systems on a river. Th agency publishes necessary river guides with comprehensive interagency information included: It determines land posting needs and makes interagency river recreation information available to the public through the separate agency offices and private enterprises, such as sporting shops.

APPENDIX A

KEY INFORMANTS

STATE OF MONTANA PERSONNEL

Berntsen, Ray V., Region 5 Park Manager	Phone
Conklin, David G., Region 7 Park Manager	Phone
Holton, George D., Assistant Administrator, Fisheries Division	Meeting
Knupp, Terry Lee, State Recreation Planner	Meeting
Monger, Doug, Region 3 Assistant Park Manager	Phone
Pacini, Paul, State Recreation Planner	Meeting
Vincent, Daniel P., Region 4 Park Manager	Phone
Wells, Jerry, Region 3 Fish and Wildlife Biologist	Phone
Wippelman, Al, Region 4 Fisheries Manager	Phone

U.S. FOREST SERVICE PERSONNEL

Deschamps, Charles S. Forester, White Sulpher Springs Ranger District	Phone
Lewis, Larry, District Ranger, Gardiner Ranger District	Phone

BUREAU OF LAND MANAGEMENT PERSONNEL

Blair, Rodger, Recreation Planner, Wyoming State Office	Phone
Bruns, Don, Recreation Planner, Colorado State Office	Phone
Geier, Dick, Recreation Planner, Idaho State Office	Phone
Fox, Lyle, Headwaters Resource Area Manager	Meeting
McDaniel, Darrell, Butte District Recreation Planner	Meeting
McKee, Pat, Dillon Resource Area Recreation Planner	Phone
McTaggart, Ed, Miles City District Recreation Planner	Phone
Mosbaugh, Keith, Billings Area Recreation Planner	Meeting
Roholt, Chris, Miles City District Economist	Phone
Stoner, Mary Alice, Headwaters Resource Area Recreation Planner	Meeting
Whitehead, Clark, Lewistown District Recreation Planner	Phone

RIVER STUDY - KEY INFORMANTS

DATE ______________

RIVER ______________

NAME ________________________ POSITION ________________________________

1. List present recreation uses. If floating - are there outfitters who use river? Name. Is it regular basis?

2. Are use figures available? Visitor day? ______________________________
Is it possible to estimate numbers of users (by season)? ________________
When are peak periods?

3. Which recreation use predominates? ________________________________
Can you estimate percentage of ages by activity?

. Is demand for access greater than availability? ____________________
What indicates this? Is it greatest along particular sections?
Where? __________ to __________

. Number of public accesses on the river?

. If additional accesses are needed - what type?

. Is there any or adequate posting (Info, Publications) about available accesses? Do river segments attract locals, statewide nationally?

. Are there particular problems along the river? (crowding, conflicts between user groups)

From private land owners point of view?

From managers point of view?

Additional comments - (Get at professional opinion/perceived needs)

APPENDIX B

I. Name and Description

A. Site Name - MEAGHER COUNTY #1 (Buck Gulch)

B. Legal Description - T. 13 N., R. 4 E., Section 34, SW1/4NW1/4, W1/2SW1/4, SE1/4SW1/4.

C. Location - This site is located 3 river miles north of the Montana Fish, Wildlife and Parks access site at Camp Baker. The northeastern corner of the unit is cut by the Smith River. (Devils's Footstool Quadrangle)

II. Physical Characteristics

The site is composed of rolling bench land next to the river. Approximately 5 acres is grass adjacent to river bank. The remaining 155 acres is timbered with Douglas-fir. From the river the ground rises rapidly and includes a couple of minor drainages and a small finger ridge (E 15075). The portion of the unit suitable for floater's use is the small bench meadow adjacent to the river.

III. Recreation Attractions

The main attraction to this site is fishing and close proximity to the Camp Baker access. Floaters arriving late in the day would find this site the first piece of public land available for camping.

IV. Accessibility/Signing/Landownership

This site is acessible only by floating the Smith River as it is surrounded by private land. The BLM boundaries along the river are signed with entering and leaving signs. In addition, there is a sign indicating that the area is open to camping (boat camp sign). All of these signs are placed on the west side of the river. BLM land is also on the east side. However, since the parcel is small and it was felt that recreationists would continuously trespass on the adjacent private land in search of firewood, only the west side was signed.

V. Camping Opportunities and Limitations

There are no developed sites here. The only suitable place for camping is on the grassy bench next to the river. Although both the east and west sides of the river are suitable, only the west is suitable because of potential floater/landowner conflicts. No fresh water is available. Firewood can be found in the BLM forests west and south of the site. The site is sufficiently large to handle one to three groups. However, there is only one fire ring at present.

VI. Impacts on Recreation from Other Activities

Cattle can enter the area by crossing the river or drifting in from

Source: BLM Headwaters Resource Area

adjacent private lands.

The unit is located next to a field cultivated for alfafa hay. Use of the field by recreationists could cause additional conflicts.

There are conflicts with landowners over trespass.

VII. A. Use Observed - Only one party was observed to use this site, even though many groups were informed of and urged to use it.

B. Recreation Impacts and Use Indications - The only apparent impacts from recreation are scattered single fire rings.

C. Use Estimates - None.

VIII. N.A.

IX. Management Recommendations

A. Place larger, more visible public land signs along the river on the west bank to attract more people to the site.

B. Place a larger and more prominent boat camp sign along the grassy bench.

C. Continue to sign only the west portion of river.

D. Construct three fire rings in suitable places.

E. Cut or construct places for landing boats and canoes.

F. River rangers should check on sites regularly for garbage and sign of abuse or over use.

I. Name and Description

A. Site Name - MEAGHER COUNTY (#2)

B. Legal Description - T. 13 N., R. 4 E., Section 28 NW1/4SW1/4

C. Location - The site is located 4 1/2 miles from Camp Baker on both sides of the river. (Devil's Footstool Quadrangle)

II. Physical Characteristics

This site consists of 40 acres cut in half by the river. Extremely steep slopes are covered with Douglas-fir trees.

III. Recreation Attractions

There is little recreation attraction, other than a place to stop and fish from shore.

IV. Accessiblility/Signing/Landownership

The only access is by river, as this parcel is surrounded by private land.

It is signed on both sides of the river with public lands signs.

V. Camping Opportunities and Limitations

This unit contains only one very marginal campsite which consists of a very small area under some large conifers next to river on the east side. The site barely has room for a small 2-person backpack tent. Most of the site is too steep for camping.

VI. Impacts on Recreation from Other Activities

A private summer home is located 400 yards to the south.

VII. Use

A. Observed - None

B. Recreation Impacts and Use Indications - One fire ring at the marginal campsite.

C. Use Estimates - N/A.

VIII. User Characteristics and Preference

N/A.

IX. Management Recommendations

Place larger public lands signs on both sides of river.

I. Name and Description

A. Site Name - MEAGHER COUNTY #3 (Indian Spring)

B. Legal Description - T. 13 N., R. 4 E., Section 29 SE1/4SE1/4

C. Location - The site is located 8 miles by river from Camp Baker on the east bank of the river.

II. Physical Characteristics

This site is a flat park-like wooded bench situated across from Indian Spring. The overstory consists of Douglas-fir trees of approximately 60-100 year age class. The understory is grassy with brush including snowberry and chokecherry. There are several fire rings in area.

III. Recreation Attractions

This is a good site as it is only 2 hours from Camp Baker by boat. The Indian Spring is a waterfall that cascades down the west bank into the river. The waterfall besides being a scenic attraction is also an excellent source of potable water. Fishing is good in this area with the predominant species being 8 to 12 inch rainbow. Whitefish are also plentiful. It would not be difficult for most campers to catch enough fish for an evening meal at this site. This site is also an attractive place to camp because of the presence of the waterfall, the abundance of fish, the availability of potable water, proximity to Camp Baker and the park land nature of the site. All of these contribute to making this a very desirable camping spot and one of the most heavily used sites on the river.

IV. Accessibility/Signing/Landownership

This site can be accessed only by floating down from Camp Baker. It would be possible to reach the site by traveling overland through George Zieg, Jr.'s place, then going cross country along the river. However, private lands traversed following this route are closed to the public. This site is owned by Jack Galt. Jack Colemen also claims he owns it, but county plat books do not bear this out. It is presumed that he leases the grazing rights. Recreation use has occurred for some time at this site. Colemen indicated (for what it is worth) that the continued use is OK by him. It appears that Galt would have the final say.

V. Camping Opportunities and Limitations

There are two distinct campsites at this site, and several less distinct, infrequently used satellite sites. The primary site is located directly across the river from the spring. This site is preferred by the floaters. The other sites act as overflow sites, with campers utilizing them only when the more attractive site is

occupied. Site A was occupied 5 out of 8 visits. It consists of one large fire ring with make-shift wooden benches constructed around it. There is a secondary fire ring 15 feet to the east that was utilized and then scattered. Depending on the mood of the campers, there is room for several large tents near this site.

Site B is less attractive and consists of a single fire ring located approximately 100 yards NW from site A. It is under several large fir trees with little room for tents. The other sites present here are used very little, and consist of small fire rings, and space for only small tents.

Problems at this site include disposal of human waste, lack of firewood, crowding, and potential pollution of Indian Spring. Human waste is evident and noticeable in the brush as close as 100 feet behind these sites. Toilet paper also is evident. Firewood is scarce with some live trees mutilated and most dead limbs broken off. Crowding is another problem. Forty-three people were observed at this site during the last weekend in June. Indian Spring located across the river represents a recreational attraction. Many people explore around the old moonshiner's cabin above the waterfall. The water flows down a fragile moss and fern covered drainage which is very steep with wet, heavy soils. A potential problem is stream pollution caused by churned mud and rock from hikrs. The potential for contamination by human waste also exists here. The problems are compounded by the fact that this is private land and is in relatively close proximity to Camp Baker.

VI. Impacts on Recreation from Other Activities.

None

VII. Use

A. Observed - This site was consistently occupied during the float season. Its close proximity to Camp Baker renders it a desirable destination for the floater who has a late start, and a preferrable alternative to camping at Camp Baker. This site receives at least one visit each week by a party of floaters throughout the entire float season. During the 1980 use season it often was occupied for over 7 days at a time. As many as 7 different groups totalling 43 people, were observed utilizing the site on one occasion. The groups varied from a family and friends to a YMCA group of 17. The site is favored by outfitters and large organized groups, probably because of the amount of space and the close distance to Camp Baker.

B. Recreation Impacts and Use Indications - There are several fire rings with the surrounding ground heavily compactd. The soil around site A is barren in many places and rain water no longer percolates into the soil. All readily available firewood has been utilized.

There are well defined impromptu trails radiating out from the site, accessing the river, bushes behind the site and satellite fire rings. Some trees are cut and scarred and there are conspicuous amounts of toilet paper in the bushes.

C. Use Estimates - The number of visits to this site is estimated as 200.

VIII. User Characteristics and Preferences

N/A

IX. Management Recommendations

A. The property should be purchased from Mr. Galt, traded for other BLM lands in vicinity or a recreational easement obtained. This site receives so much use that it should be in the public ownership. It represents a major landmark in the floating experience. People who don't stop to camp generally stop for lunch or to obtain fresh water.

B. The site should be monitored closely for resource degradation or contamination of Indian Spring.

C. River etiquette signs should be placed explaining the pack it in, pack it out philosophy and proper disposal of human waste.

D. Fire rings should be established in suitable locations and inappropriate satellite sites should be eliminated.

E. The site should be signed as a public campsite if and when such use becomes legal.

F. The site needs to be maintained for litter and general cleanlines and existing fire rings need to be improved.

I. Name and Description

A. Site Name - CASCADE COUNTY (#5)

B. Legal Description - T. 16 N., R. 4 E., Section 30, Lots 9 and 10

C. Location - This site is located 35.5 miles downstream from Camp Baker on both banks of the river (Millegan Quadrangle)

II. Physical Characteristics

This is a rectangular shaped parcel of 80 acres. It lies lengthwise across the mouth of a huge horseshoe-shaped bend. The river crosses through it at either end of the rectangle, dividing the parcel into three pieces. The southern-most piece is a bench which gradually slopes to the river. The bank immediately adjacent to the river is covered with thistle and stickers. The rest of the site is grassy with a scattering of Douglas-fir.

The central piece contains a ridge that forms the center of the horseshoe. This ridge is several hundred feet higher than the river and includes many interesting rock formations. The north slopes support thick stands of Douglas-fir, giving way to a small bench with cottonwoods adjacent to the river.

The northern-most piece is a very gently sloping bench covered with green grass and shaded by large cottonwoods.

III. Recreation Attractions

Recreation attractions include camping, fishing, swimming and hiking.

IV. Impacts on Recreation from Other Activities

The site is accessible only via the Smith River. At present it is signed with BLM public land signs which are nearly invisible. The BLM site is adjacent to USFS land on the south with private land to the east, west and north.

V. Camping Opportunities and Limitations

Camping opportunities are excellent on the north shore of the central portion, and on the northern-most portion. Three fire rings are presently located under a large cottonwood. The open grassy bench of the northern portion would support several large groups. Firewood is scarce and while there is plenty of room for tents, it is hard to find a flat spot.

VI. Impacts on Recreation from Other Activities

This area is grazed, but evidently most grazing occurs after the floating season is over.

VII. Use

A. Observed - Few people were observed at this site.

B. Recreation Impacts and Use Indications - Recreation impacts were limited to the three fire rings and some toilet paper found in the bushes.

C. N/A

VIII. N/A

IX. Management Recommendations

A. This site should be designated as a boat camp.

B. The existing three fire rings should be consolidated. Two more sites could be established thus giving the site the capacity to accommodate three groups without crowding.

C. The site should be monitored for resource degradation.

D. More visiable public land mark signs are needed at boundary of BLM land.

I. Name and Description

A. Site Name - CASCADE COUNTY #8 (Black Butte)

B. Legal Description - T. 16 N., R. 3 E., Section 12, NE1/4SW1/4,
N1/2SE1/4

C. This site is located 43.5 miles downstream from Camp Baker, and approximately 15 miles from Eden Bridge on both banks of the Smith River. (Boston Coulee School Quadrangle)

II. Physical Characteristics

This is a 120 acre parcel, rectangular in shape, with the southeast corner severed by the Smith River. The south eastern corner consists of a brush field near the river which gradually gives way to timber. There is also the remains of an abandoned homestead. There is an old steam engine tractor overgrown and hidden in the bushes near the homestead.

The northern portion contains a variety of land forms. Steep cliffs are present directly across from the homestead. They gradually give way to a small bowl that forms a natural amphitheater rimned by cliffs, This basin is covered with wild flowers and tall grasses. There is a stream flowing down through it that eventually enters into a small thick forest above the river. The stream empties into the Smith.

The grasses of the basin give way to thick mixed stands of Douglas-fir, Douglas hawthorne, and an occasional cottonwood. The forest runs all the way to the edge of the bench about 30 feet above the river. The bench then drops steeply to the river with little shore on beach.

III. Recreation Attractions

Recreation attractions here include the large meadow, the creek and the forest. A potential attraction is the old homestead and steam engine if it exists. Opportunities for camping, hiking, and fishing are present here.

IV. Accessibility/Signing/Landownership

A. The only access to the site is via the Smith Rivr. A jeep trail which crosses the southwest corner of the property is owned by Ken Staigmiller and is not open to the public.

B. The northern portion of the site is signed with a boat camp sign.

C. The BLM site is surrounded by private land.

V. Camping Opportunities and Limitations

At present there are three established campsites on the BLM parcel.

There are several suitable sites on the bench as well as potential sites in the forest. However, there is no access to the forest sites.

VI. Impacts on Recreation from Other Activities

Horses graze the southeast corner of the site, but little if any sign of grazing were found in the large basin and the adjoining concealed bench.

VII. Use

A. Observed - No one was observed utilizing this site.

B. Recreation Impacts and Use Indications - None

C. Use Estimates - N/A

VIII. User Characteristics and Preferences

Presumably persons utilizing this site would be looking for a short easy float on their last day on the river.

IX. Management Recommendations

A. The area should be signed with boundary signs.

B. Some campsites could be constructed on the forest bench.

C. The site should be monitored for resource degradation.

APPENDIX C

Montana Rivers and Streams Inventory from U.S. Army Mapping Service 1:250,000 Series. The names of rivers and streams are listed according to the Index Sheet they are found on.

INTERMITTENT RIVERS

DUBOIS: W. Fk. Ruby River
ASHTON: Little Elk River
HAVRE: E. Fk. Milk River

PERENNIAL RIVERS WITH PREDOMINANTLY SINGULAR OWNERSHIP CLASSIFICATION

KALISPELL: W. Fk. Yaak River
N. Fk. Bull River
Pleasant Valley Fisher River

WALLACE: W. Fk. Thompson River
Jocko River

CUT BANK: Waterton River
N. Fk. Belly River
Belly River
St. Mary River
M. Fk. Milk River
N. Fk. Milk River
Dry Fk. Milk River
S. Fk. Milk River
Two Medicine River

CHOTEAU: S. Fk. Flathead River
Spotted Bear River
S. Fk. Jocko River
M. Fk. Jocko River
W. Fk. Teton River
M. Fk. Teton River
N. Fk. Sun River
W. Fk. Sun River
White River
S. Fk. White River
Dearborn River
East Fk. Blackfoot River

DILLON: W. Fk. Ruby River

BOZEMAN: W. Fk. West Boulder River
E. Fk. West Boulder River
E. Fk Boulder River

ASHTON: E. Fk. Ruby River
W. Fk. Madison River
Elk River

BILLINGS: W. Fk. Stillwater River

HARDIN: Little Bighorn River

PERENNIAL RIVERS WITH PREDOMINANTLY MULTIPLE OWNERSHIP CLASSIFICATION*

KALISPELL:	Yaak River Kootenai River Bull River E. Fk. Bull River Clarks Fork E. Fk. Yaak River Tobacco River Fisher River W. Fisher River Wigwam River Stillwater River N. Fk. Flathead River Flathead River S. Flathead River
WALLACE:	Clarks Fork Saint Regis River East Fisher River Thompson River N. Fk. Little Thompson River Little Thompson River Flathead River Little Bitterroot River
HAMILTON:	Clarks Fork Bitterroot River
ELK CITY:	E. Fk. Bitterroot River W. Fk. Bitterroot River Bitterroot River
CUTBANK:	M. Fk. Flathead River Milk River S. Fk. Two Medicine River Red River Dry Fk. Marias River
CHOTEAU:	Swan River W. Fk. Clearwater River Clearwater River Jocko River Teton River S. Fk. Teton River N. Fk. Blackfoot River Blackfoot River Clarks Fork Teton River Sun River M. Fk. Dearborn River S. Fk. Dearborn River Landers Fk. Blackfoot River
BUTTE:	Blackfoot River Clearwater River Clarks Fork Little Blackfoot River Boulder River Little Boulder River
DILLON:	Big Hole River Wise River S. Boulder River Beaverhead River Jefferson River Ruby River E. Fk. Bitterroot River
DUBOIS:	Red Rock River
SHELBY:	Marias River Dry Fk. Marias River Milk River Missouri River
GREAT FALLS:	Teton River Sun River Dearborn River Missouri River Smith River Dry Fk. Smith River Marias River
WHITE SULPHUR SPRINGS:	Missouri River Boulder River Smith River N. Fk. Smith River S. Fk. Smith River Judith River S. Fk. Judith River M. Fk. Judith River N. Fk. Musselshell River S. Fk. Musselshell River Musselshell River Dry Fk. Musselshell River Shields River S. Fk. Shields River
BOZEMAN:	Boulder River S. Boulder River Ruby River Madison River Missouri River

* INCLUDES RIVERS IN PREDOMINANTLY PRIVATE OWNERSHIP CLASSIFICATION

PERENNIAL RIVERS WITH PREDOMINANTLY MULTIPLE OWNERSHIP CLASSIFICATION*

(Continued)

BOZEMAN:
Gallatin River
E. Gallatin River
N. Fk. W. Fk. Gallatin River
N. Fk. W. Fk. Gallatin River
S. Fk. W. Fk. Gallatin River
W. Fk. Gallatin River
Yellowstone River
Shields River
W. Boulder River
E. Boulder River
Boulder River
W. Fk. Stillwater River

ASHTON:
Red Rock River
Ruby River
S. Fk. Madison River
Madison River
Gallatin River

HAVRE:
Milk River

LEWISTOWN:
Missouri River
Judith River

ROUNDUP:
Judith River
Musselshell River

BILLINGS:
Boulder River
Stillwater River
Clarks Fork Yellowstone River
Bighorn River
Yellowstone River

GLASGOW:
Milk River
E. Fk. Poplar River
Missouri River

JORDAN:
Mussellshell River
Missouri River (Ft. Peck Reservation)

FORSYTH:
Musselshell River
Yellowstone River
Bighorn River

HARDIN:
Bighorn River
Tongue River

WOLF POINT:
Poplar River
W. Fk. Poplar River
E. Fk. Poplar River
Missouri River

GLENDIVE:
Redwater River
Missouri River
Yellowstone River

MILES CITY:
Tongue River
Powder River
Yellowstone River

EKALAKA:
Powder River
Little Powder River
Little Missouri River

* INCLUDES RIVERS IN PREDOMINANTLY PRIVATE OWNERSHIP CLASSIFICATION

INTERMITTENT CREEKS

KALISPELL:
Little Cherry Creek
Basin Creek
Thoma Creek
Shorty Creek

WALLACE:
Trapper Creek
Silver Creek
Briggs Creek
Redmond Creek
Beatrice Creek
Munson Creek
Eddy Creek
Flat Rock Creek
Dry Fork Creek
Thompson Creek

HAMILTON:
S. Fk. Trout Creek

CUT BANK:
Squaw Creek
Fox Creek
Arnold Creek
S. Fk. Greasewood Creek

CHOTEAU:
Tin Creek
Soup Creek
String Creek
Hungry Creek
Show Creek
Colt Creek
Falls Creek
Hodag Creek
Circle Creek
Glenn Creek
N. Fk. Glenn Creek
S. Fk. Glenn Creek
Arsenic Creek
Bear Creek
Goat Creek
N. Fk. Helen Creek
S. Fk. Helen Creek
Damnation Creek
Lange Creek
Beaver Creek
Halfmoon Creek
Green Fork Creek
Halfmoon Creek
Clarks Fork Creek
Crow Creek
N. Jefferson Creek
S. Jefferson Creek
Kade Creek
Kings Creek
Hogan Creek
Little Skunk Creek
Hardgrove Creek
Bedrock Creek

BUTTE:
Twin Creek
Camas Creek
Bear Creek
Little Park Creek
Greenough Creek
Wallace Creek
Cramer Creek
Ryan Creek
Schwartz Creek
Big Sheep Creek
Medicine Rock Creek
N. Fk. Lyons Creek
Spring Creek
Brewster Creek
Sawmill Creek
Welcome Creek
Cinnabar Creek
Granite Creek
Grayhorse Creek
Ambrose Creek
Cinnamon Bear Creek
Butte Cabin Creek
Ranch Creek
Flat Creek
Powers Creek
Avon Creek
Shylo Creek
Wahlquist Creek
Slocum Creek
Claremont Creek
Belmont Creek
Sawmill Creek
Alder Creek
Cougar Creek
Hutsin Pilar Creek
Big Spring Creek
Hogback Creek
Gold Creek
Signal Creek
Wyman Creek
Spring Creek
St. Clair Creek
Antelope Creek
Railroad Creek
W. Fk. Rock Creek
Sand Basin Creek
Bear Creek
Divide Creek
Elk Creek
Chamberlain Creek
Pearson Creek
Washoe Creek
Fivemile Creek
Murray Creek
Bear Creek
Sheep Creek
Chimney Creek
Little Bear Creek
Tyler Creek
Harvey Creek
Wood Creek
Antelope Creek
Eightmile Creek
Cow Creek
McLean Creek
Cottonwood Creek
Copper Creek
Sawmill Creek
Little Gold Creek
Barker Creek
Meadow Creek
Page Creek
Blodgett Creek
Sullivan Creek
Twelvemile Creek
Tenmile Creek
Clear Creek
Sauerkraul Creek
Little Sheep Creek
Gallagher Creek
Mitchell Creek
Ophir Creek
Marsh Creek
N. Fk. Little Prickly Pear Creek
S. Fk. Little Prickly Pear Creek

INTERMITTENT CREEKS (Continued)

Hope Creek
Meade Creek
McDonald Creek
Carpenter Creek
Snowshoe Creek
Ellis Creek
Telegraph Creek
Caribon Creek
Flint Creek
Bigfoot Creek

DILLON:
Praine Creek
Mink Creek
Bertie Lord Creek
Reynolds Creek
Swift Creek
Dense Creek
Carmine Creek
Buck Creek
Clam Creek
Prairie Creek
Elk Creek
Joseph Creek
Stevenson Creek
Hole Creek
Schultz Creek
S. Fk. Tie Creek
Holland Creek
Slag A Melt Creek
Big Swamp Creek
Berry Creek
Jahnke Creek
Park Creek
Beaver Creek
McCormick Creek
Palisade Creek
Toomey Creek
Sawlog Creek
Tucker Creek
Walker Creek
Meadow Creek
Granulated Creek
American Creek
Indian Creek
Beef Straight Creek
Norton Creek
Trail Creek
Charcoal Creek
Sheep Creek
Sand Creek
Papoose Creek
Lambrecht Creek

Reservoir Creek
Stine Creek
Grouse Creek
Gold Creek
Boulder Creek
Little Joe Creek
David Creek
Elkhorn Creek
Adson Creek
Vipond Creek
Cow Cabin Creek
Old Tim Creek
Harrison Creek
Divide Creek
Snyder Creek
Dingley Creek
Farlin Creek
Scudder Creek
French Creek
Ore Creek
Eunice Creek
Kitty Creek
Camp Creek
Selway Creek
Andrus Creek
Lodgepole Creek
Jensen Creek
Grimes Creek
Swamp Creek
Reservoir Creek
Watson Creek
Dunlap Creek
Painter Creek
Little Basin Creek
Pipestone Creek
Rader Creek
Dry Creek
Fritz Creek
Cottonwood Creek
Spring Creek
Lost Creek
Horse Creek
Cottonwood Creek
Morman Creek
Bivens Creek
Williams Creek
Barton Creek
Bill Hill Creek
N. Fk. Sweetwater Creek
Cream Creek

DUBOIS:
Frying Pan Creek

Sheser Creek
Bear Creek
Trail Creek
Spring Creek
N. Fork Everson Creek
Shenon Creek
Jeff Davis Creek
Maiden Creek
Nip and Tuck Creek
N. Fk. Divide Creek
Barrett Creek
Poole Creek
Noble Creek
Hansen Creek
Cochran Creek
Schwartz Creek
Dad Creek
Hildreth Creek
Mornson Creek
Deer Canyon Creek
Medicine Lodge Creek
Warm Spring Creek
Maurer Creek
McNinch Creek
Mudoy Creek
Sheep Creek
Cabin Creek
Simpson Creek
Crystal Creek
Coyote Creek
Alkali Creek
Meadow Creek
Rock Creek
Deadmans Creek
Divide Creek
Buck Creek
Long Creek
Crooked Creek
West Fork
Beech Creek
Break Creek
Sage Creek
Little Sage Creek
Jake Canyon Creek
Cottonwood Creek
Basin Creek
Blacktail Deer Creek
W. Fk. Blacktail Deer Creek
E. Fk. Blacktail Deer Creek
Alkali Creek
Rock Creek

INTERMITTENT CREEKS (Continued)

Trail Creek
E. Fk. Clover Creek
Clover Creek
Long Creek
Piute Creek
Crom Creek
Pole Creek
Jones Creek
Swamp Creek
Shovel Creek
Hawkeye Creek
Beaver Creek
Timber Creek
Dog Creek
Straight Creek
W. Fk. Little Sheep Creek
Little Sheep Creek
Birch Creek
Alder Creek
Deep Creek
Sawmill Creek
Shine Berger Creek
Beaver Creek
Big Beaver Creek
Corral Creek
Price Creek
Peet Creek
Horse Prairie Creek

SHELBY:
Powers Creek
Kicking Horse Creek
Prichard Creek
Bread Creek
Dead Indian Creek
Fourteen Mile Creek
Duck Creek
Simmons Creek
Sheep Creek
Willow Creek
W. Fk. Willow Creek
Strawberry Creek
Deer Creek
Sage Creek
Little Sage Creek
Trail Creek
Eagle Creek
Government Creek
Corral Creek
Horse Creek
Cottonwood Creek
Little Sandy Creek.

GREAT FALLS:
Big Muddy Creek
Simms Creek
Fourmile Creek
Muddy Creek
Birdtail Creek
St. Johns Creek
Dry Fork Creek
Lepley Creek
Sullivan Creek
Sheep Creek
Willow Creek
Flat Creek
Wegner Creek
Squaw Creek
Porcupine Creek
Government Creek
Sand Coulee Creek
Box Elder Creek
Neel Creek
N. Willow Creek
Cora Creek
Little Otter Creek
Mullens Creek
Clark Creek
Trout Creek
Eagle Creek
Spring Creek
Lepleys Creek
Alder Creek
Steele Creek
Old Geyser Creek
McCarthy Creek
Shannon Creek
Dipping Vat Creek
Meadow Creek
Coyote Creek
Sun Creek
Louse Creek
N. Fk. Sheep Creek
S. Fk. Sheep Creek
Deer Creek
Virgin Creek
S. Fk. Hoover Creek
Cottonwood Creek
Davis Creek
Long Tree Creek
Dry Wolf Creek
Running Wolf Creek

WHITE SULPHUR SPRINGS:
Hound Creek
Crooked Creek
Willow Creek
Spokane Creek
Avalanche Creek
White Creek
Spring Creek
Whitehorse Creek
Brady Creek
Tenderfoot Creek
Dunn Creek
Dry Cottonwood Creek
Trout Creek
Daisy Creek
Iron Mines Creek
Tillinghast Creek
Kinney Creek
Daniels Creek
Wolsey Creek
Adams Creek
Jumping Creek
Thomas Creek
Keep Cool Creek
Dry Creek
Rabbit Creek
Lake Creek
Studhorse Creek
Boulder Creek
Clear Creek
Cottonwood Creek
Paddys Run Creek
Long Willow Creek
Carpenter Creek
Dry Wolf Creek
Waite Creek
Lost Fork Creek
Agate Creek
Maynes Creek
Adolph Creek
Dry Creek
Courtney's Creek
Coyote Creek
W. Fk. Lost Fork
Yogo Creek
Harrison Creek
Cleveland Creek
Hell Creek
O'Brien Creek
Lamb Creek
Mass Creek
Dry Creek
Copper Creek
Lion Creek
Dry Fork Creek
Whitetail Creek
Mud Creek

INTERMITTENT CREEKS (Continued)

Dirty Creek
Dry Fk. Daisy Dean Creek
Nevada Creek
Trombone Creek
Corral Creek
Bonanza Creek
Coyote Creek
W. Fk. Cottonwood Creek
Loco Creek
N. Fk. Big Elk Creek
S. Fk. American Fork Creek
S. Fk. Big Elk Creek
Bennett Creek
Smith Creek
Big Timber Creek
Cinnamon Creek
Bear Creek
Lebo Creek
Fish Creek
Basin Creek
Wheeler Creek

BOZEMAN:
Dry Creek
McDeed Creek
Work Creek
Hunters Creek

ASHTON:
Bull Creek
Cow Creek
Jug Creek
Short Creek
N. Fk. Cottonwood Creek
Burnt Creek
Elk Creek
Tributary Creek
Lazyman Creek
Poison Creek
Basin Creek
Murphy Creek
Perkins Creek
Fox Creek
Buford Creek
Fossil Creek
Cascade Creek
Portal Creek
Lobo Creek
Long Creek
Hell Roaring Creek
Barnet Creek
Dirty Creek
N. Fk. Teepee Creek
Teepee Creek
Meridan Creek
Teepee Creek
Deer Creek
Wall Creek
N. Fk. Wall Creek
Bobcat Creek
Wolverine Creek
Gazelle Creek
Bogus Creek
Soap Creek
Freezeout Creek
Spring Branch Creek
Horn Creek
Deadman Creek
N. Fk. Squaw Creek
M. Fk. Squaw Creek
S. Fk. Squaw Creek
Moose Creek
Bad Luck Creek
Stock Creek
Fish Creek
Metzel Creek
Mud Creek
Winslow Creek
Jones Creek
Tipton Creek
Curry Creek
Matsingale Creek
Duff Creek
Humphrey Creek
Shambon Creek
Elk Creek
Tom Creek
Horse Creek
Lone Tree Creek
Sentenial Creek
N. Fk. Hilgard Creek
S. Fk. Hilgard Creek
W. Fk. Beaver Creek
Rock Creek
Sheep Creek
Cub Creek
Cabin Creek
W. Fk. Trapper Creek
Trapper Creek
Coffin Creek
Kirkwood Creek
E. Fk. Cream Creek
Teepee Creek
Bacon Rind Creek
Snowslide Creek

HAVRE:
Battle Creek
Bull Hook Creek
Box Elder Creek
Beaver Creek
Duck Creek
Camp Creek
Gorman Creek
Little Creek
Eagle Creek
Little Birch Creek
Birch Creek
Sucker Creek
Branch or Sand Creek
E. Fk. Clear Creek
Reser Creek
Dry Fork Creek
Coal Creek
Fifteen Mile Creek
E. Branch Thirty-mile Creek
Thirty-mile Creek
W. Forgey Creek
Forgey Creek
W. Fk. Wayne Creek
E. Fk. Wayne Creek
Grindstone Creek
Wind Creek
N. Fk. Cow Creek
Hedoes Creek
Miles Creek
O'Brien Creek
Rattlesnake Creek
Logan Creek
Cow Creek
Gap Creek
Winters Creek
Suction Creek
Myrtle Creek
Three Mile Creek
Little Peoples Creek
Duck Creek
Als Creek
Wayne Creek
Savory Creek
W. Fk. Savory Creek
E. Fk. Savory Creek
Black Creek
Buckley Creek
Cottonwood Creek
Milk Creek
Dodson Creek
Assiniboine Creek

INTERMITTENT CREEKS (Continued)

Spring Creek
Fifteen Mile Creek
S. Fk. Peoples Creek
Jim Browns Creek
Lodgepole Creek
Dry Warm Springs Creek
Big Warm Springs Creek
Wild Horse Creek
W. East Alkali Creek
Little Warm Springs Creek

LEWISTOWN:
Eagle Creek
Dog Creek
Chip Creek
Little Birch Creek
Birch Creek
Sand Creek
Flat Creek
Arrow Creek
Coyote Creek
Wolf Creek
Salt Creek
Box Elder Creek
Plum Creek
Dry Wolf Creek
Indian Creek
S. Sage Creek
Louse Creek
Ross Fk. Creek
Rock Creek
Little Rock Creek
Cutbank Creek
Little Salt Creek
Bull Creek
Burnette Creek
Bread Creek
E. Fk. Big Spring Creek
Pike Creek
Deer Creek
Cottonwood Creek
Taffy Creek
Bullwacker Creek
Little Bullwacker Creek
W. Branch Squaw Creek
Woodhawk Creek
Two Calf Creek
S. Fk. Two Calf Creek
Sourdough Creek
Antelope Creek
Armells Creek
Boyd Creek
Murday Creek
Armells Creek
E. Fk. Armells Creek
N. Fk. McDonald Creek
Chippewa Creek
Alkali Creek
Fords Creek
Ford Creek
Little Box Elder Creek
Brickyard Creek
Edwards Creek
Bear Creek
S. Fk. Bear Creek
Siparyann Creek
Sand Creek
Cottonwood Creek
Rock Creek
Lodgepole Creek
C K Creek
Alder Creek
Camp Creek
Sevenmile Creek
Spring Creek
Beauchamps Creek
Beaver Creek
Little Woman Creek
Dry Fork Creek
Soda Creek
Crooked Creek
Little Crooked Creek
Antelope Creek
Blood Creek
Sage Creek
Dry Blood Creek
S. Fk. Dry Blood Creek
Duck Creek
Fords Creek
Buffalo Creek

ROUNDUP:
Coyote Creek
W. Buffalo Creek
Mud Creek
E. Fk. Mud Creek
Dawkins Branch
Olsen Creek
Little Trout Creek
Buffalo Creek
Dry Creek
Meadow Creek
W. Fk. Rock Creek
W. Fk. Beaver Creek
M. Fk. Beaver Creek
Ber Cail Creek
Barrows Creek
Red Bluff Creek
Antelope Creek
Hopley Creek
Roberts Creek
E. Fk. Roberts Creek
Blake Creek
Elk Creek
Careless Creek
Milton Creek
Timber Creek
Mud Creek
Spring Creek
Antelope Creek
Tony Creek
Potatoe Creek
Jim Creek
Andrews Creek
Cherry Creek
Simmons Creek
S. Fk. Big Coulee Creek
Casino Creek
Mill Creek
Hansen Creek
Castle Creek
Duncan Creek
Tyler Creek
Bear Creek
N. Fk. Elk Creek
S. Fk. Elk Creek
Potter Creek
Durfee Creek
Whoop-up Creek
N. Fk. Flatwillow Creek
Holt Creek
W. Fk. Tyler Creek
Marcott Creek
Spring Creek
Halbert Creek
Merrille Springs Creek
Currant Creek
Cameron Creek
Minerva Creek
Five Mile Creek
Nine Mile Creek
Rock Creek
Big Coulee Creek
Lost Creek
Hop Creek
Yellowwater Creek
N. Maginnis Creek

INTERMITTENT CREEKS (Continued)

Maginnis Creek
Spring Creek
Sand Creek
E. Parrot Creek
Hawk Creek
Four Mile Creek
Fish Creek
Dry Fork Hawk Creek
N. Fk. Cotton Creek
N. Fk. Crooked Creek
Crooked Creek
S. Fk. Crooked Creek
Goulding Creek
Stanley Creek

BILLINGS:
Ten Mile Creek
Otter Creek
Dry Creek
Upper Deer Creek
Lower Deer Creek
W. Bridger Creek
Derby Creek
E. Bridger Creek
Bridger Creek
Silver Creek
Greycliff Creek
Handmans Creek
Fletcher Creek
Sweetgrass Creek
Crest Creek
E. Fk. Sweetgrass Creek
Dry Fork Creek
Wildcat Creek
Cottonwood Creek
W. White Beaver Creek
Work Creek
Hum Creek
Whistle Creek
Sectionhouse Creek
Countryman Creek
E. White Beaver Creek
Spring Creek
Sheep Creek
Blind Bridger Creek
Magpie Creek
Prairie Creek
Little Rocky Creek
Sprang Creek
Flood Creek
Earley Creek
Muddy Creek
Deer Creek
Iron Creek
Lost Creek
Rye Grass Creek
Cole Creek
Cottonwood Creek
Fivemile Creek
N. Fk. Five Mile Creek
M. Fk. Five Mile Creek
Hogan Creek
Thiel Creek
Cele Creek
E. Red Lodge Creek
Spring Creek
Clear Creek
N. Fk. Dry Creek
S. Fk. Dry Creek
Wolf Creek
Ruby Creek
Dilworth Creek
Sand Creek
Cub Creek
Hunt Creek
Hunters Creek
Cherry Creek
Blue Creek
Crooked Creek
Razor Creek
Fily Creek
Woody Creek
S. Fk. Woody Creek
Willow Creek
Bird Creek
Piney Creek
Bear Creek
Gypsum Creek
Woody Creek
Paint Creek
Muddy Creek
Grapevine Creek
Flat Creek
Spring Creek
Pitchfork Creek
Hoodoo Creek
Midnight Creek
Sheep Creek
Sandborn Creek
Cow Creek
Jackstone Creek
Grove Creek
Ingersoll Creek
Morris Creek
Middle Creek
Six-shooter Creek
Gurney Creek
Cow Creek
Cottonwood Creek
Berry Creek
Cedar Creek
Struck Creek
Toll Creek
Greenwood Creek
N. Fk. Valley Creek
S. Fk. Valley Creek
N. Fk. Cottonwood Creek
Brown Creek
S. Fk. Canyon Creek
N. Fk. Canyon Creek
Difficulty Creek
Dry Creek
Huntley Creek
Beaver Creek
Spring Creek
Volney Creek
Butte Creek
Whitebird Creek
Joe Hill Creek
Shane Creek
Willow Creek
Cottonwood Creek
Buck Creek
Whitetail Creek
Dry Creek
Grove Creek
Hensley Creek
Allen Creek
S. Fk. Valley Creek
Tilden Creek
Bellion Creek
Squaw Creek
Stanley Creek
Cow Creek
Elbow Creek
Farewell Creek
Harney Creek
Dry Creek
Five Mile Creek
N. Fk. Alkali Creek
S. Fk. Alkali Creek
Cove Creek
Spring Creek
Duck Creek
Baskin Creek
Twelve Mile Creek

INTERMITTENT CREEKS (Continued)

Arrow Creek
Indian Creek
Ten Mile Creek
Spring Creek
N. Telegraph Creek
Wet Creek
E. Fk. Creek

GLASGOW:
Little Cottonwood Creek
Garland Creek
Cottonwood Creek
Assinboine Creek
Box Elder Creek
Little Sevenmile Creek
Dix Creek
Tallow Creek
Seven Mile Creek
Big Warm Creek
Flat Creek
Spring Creek
Crow Creek
E. Fk. Crow Creek
Bluff Creek
McCalhern Creek
S. Fk. Willow Creek
W. Fk. Bitter Creek
Bitter Creek
S. Fk. Bitter Creek
W. Fk. Cash Creek
E. Fk. Cash Creek
Cash Creek
Papoose Creek
Bush Fk. Bear Creek
Bear Creek
Canyon Creek
First Creek
Second Creek
Lime Creek
Third Creek
Fourth Creek
N. Fk. Antelope Creek
Buggy Creek
Square Creek
S. Fk. Antelope Creek
Hardscrabble Creek
Antelope Creek
N. Fk. Little Beaver Creek
Brazil Creek
Little Beaver Creek
Beaver Creek
Sage Hen Creek
Coyote Creek
M. Fk. Porcupine Creek
Cherry Creek
Dry Fork Creek
W. Fk. Little Porcupine Creek
E. Fk. Little Porcupine Creek
Spring Creek
W. Fk. Cherry Creek
Tomatoe Can Creek
Spring Creek
E. Fk. Cherry Creek
Sargent Creek
Kintyre Creek
W. Fk. Charley Creek
Mud Creek
Roanwood Creek
Coal Creek

JORDAN:
First Creek
Flat Creek
Second Creek
Third Creek
Fourchette Creek
Valentine Creek
Telegraph Creek
Dog Creek
Sage Creek
Tallow Creek
Lone Tree Creek
Killed Woman Creek
Devils Creek
Lost Creek
W. Fk. Lost Creek
Soda Creek
Crooked Creek
Drag Creek
Divetail Creek
Blood Creek
Cottonwood Creek
Cat Creek
Lodgepole Creek
S. Fk. Lodgepole Creek
N. Fk. Lodgepole Creek
M. Fk. Lodgepole Creek
Seventy-nine Creek
Calf Creek
Dog Creek
Union Creek
Squaw Creek
S. Fk. Squaw Creek
Indian Creek
Middle Fk. Lone Tree Creek
S. Fk. Lone Tree Creek

INTERMITTENT CREEKS (Continued)

Lone Tree Creek
Dog Creek
Hard Pan Creek
N. Fk. Willow Creek
S. Fk. Willow Creek
Willow Creek
Timber Creek
Square Creek
Plum Creek
Billy Creek
Sutherland Creek
Carpenter Creek
Duck Creek
Cattle Creek
Big Coulee Creek
Seven Blackfoot Creek
Lone Tree Creek
Big Dry Creek
Smokey Butte Creek
Snow Creek
Sand Creek
Hell Creek
Vail Creek
Santa Arroyo Creek
Long Branch Creek
Second Creek
Gilbert Creek
N. Fk. Box Creek
S. Fk. Box Creek
Lone Tree Creek
Cottonwood Creek
Ash Creek
Bobcat Creek
Spring Creek
Lost Creek
Bear Creek
Sand Arroyo Creek
N. Fk. Rock Creek
S. Fk. Rock Creek
McGuire Creek
N. Fk. McGuire Creek
N. Branch Rock Creek
Jack Creek
Shade Creek
Hungry Creek
Pass Creek
Fort Pass Creek
N. Fk. Woody Creek
S. Fk. Woody Creek
Woody Creek
Frazier Creek
Lone Tree Creek
Phillips Creek
Little Dry Creek
Arroyo Creek
L S Creek
Soap Creek
Flat Creek
Roming Creek
Timber Creek
Nelson Creek
Spring Creek
Taylor Creek
Crow Rock Creek
W. Fk. Lost Creek
Soda Creek
Crooked Creek
Drag Creek
Dovetail Creek
Blood Creek
Cottonwood Creek
Cat Creek
Dry Fk. Creek
Skeleton Creek
Steves Creek
Basin Creek
Camp Creek
Bear Creek
Wolf Creek
Whitehouse Creek
Red Horse Creek
Hay Creek
Duck Creek
Spring Creek
Skull Creek
Hay Creek
Skunk Arroyo Creek
Hawks Nest Creek
Antelope Creek
Red Butte Creek
U All Creek

FORSYTH:
N. Willow Creek
Mud Creek
Sage Hen Creek
Rattlesnake Creek
Calf Creek
Railroad Creek
Hibbard Creek
Mill Creek
Carpenter Creek
Hawk Creek
Weed Creek
Mill Creek
Spring Creek
Automatic Creek
Injun Creek
N. Fk. Mission Creek
W. Muggins Creek
Willow Creek
Indian Creek
W. Blacktail Creek
Great Porcupine Creek
Antelope Creek
Cottonwood Creek
W. Fk. Froze To Death Creek
E. Fk. Froze To Death Creek
Unknown Creek
Forty-four Creek
Box Elder Creek
W. Bear Creek
Horse Creek
Bear Creek
Beaver Creek
Hay Creek
Hay Creek
Thompson Creek
Crow Rock Creek
Horse Creek
N. Fk. Cottonwood Creek
Cottonwood Creek
S. Fk. Cottonwood Creek
Bull Creek
Wilson Creek
Twelve Mile Creek
Bell Creek
Beaver Creek
Snell Creek
Hay Creek
Moon Creek
Forest Creek
Buffalo Creek
Deadman Creek
Antelope Creek
E. Buffalo Creek
Alkali Creek
Muggins Creek
Sand Creek
McGinnis Creek
Short Creek
Acorn Creek
E. Blacktail Creek
Wolf Creek
Acorn Creek
E. Blacktail Creek
Wolf Creek
Hay Creek

INTERMITTENT CREEKS (Continued)

Stellar Creek
Little Porcupine Creek
Rattlesnake Creek
Froze To Death Creek
Tullock Creek
Sarpy Creek
Starved To Death Creek
Reservation Creek
Long Fork Creek
Arngus Creek
W. Fk. Arngus Creek
E. Fk. Arngus Creek
Seven Mile Creek
Smith Creek
Little Dry Creek
Lone Tree Creek
South Sunday Creek
Red Butte Creek
U Ar Creek
Ash Creek
Hay Creek
North Sunday Creek
Grimes Creek
Louie & Scottie Creek
Sheep Creek
West Rosebud Creek
Horse Creek
Rosebud Creek
Sweeney Creek
Iron Jaw Creek
Graveyard Creek
Cottonwood Creek
Moon Creek
Horse Creek
Miller Creek
Cow Creek

HARDIN:
N. Fk. Two Leggins Creek
S. Fk. Two Leggins Creek
Two Leggins Creek
Dry Creek
Big Woody Creek
Little Woody Creek
Woody Creek
Beauvais Creek
Muddy Creek
Grapevine Creek
Lime Kiln Creek
Black Canyon Creek
War Man Creek
W. Soap Creek
S. Fk. Soap Creek
Squaw Creek
Onion Creek
Shoulder Blade Creek
Bear In Middle Creek
Nest Creek
N. Sand Creek
Sand Creek
Sunday Creek
N. Fk. Goodluck Creek
S. Fk. Goodluck Creek
Alligator Creek
Ash Creek
E. Fk. Tullock Creek
M. Fk. Tullock Creek
W. Fk. Tullock Creek
Sarpy Creek
Spring Creek
Half Way Creek
Grey Blanket Creek
Shavings Creek
N. Fk. Rend Creek
Sioux Pass Creek
Little Owl Creek
Little Bear Creek
Muddy Creek
Teeth Creek
Busby Creek
Davis Creek
Thompson Creek
Little Thompson Creek
Corral Creek
Cache Creek
Spring Creek
Indian Creek
N. Fk. Rosebud Creek
S. Fk. Rosebud Creek
E. Fk. Muddy Creek
Wild Hog Creek
W. Fk. Muddy Creek
N. Fk. Bull Creek
S. Fk. Bull Creek
Coyote Creek
Bull Creek
Trail Creek
Skunk Creek
Dry Creek
Prairie Dog Creek
Canyon Creek
S. Fk. Canyon Creek
Four Mile Creek
Post Creek
Leaf Rock Creek
Spring Creek
Squirrel Creek
S. Fk. Spring Creek
N. Fk. Squirrel Creek
Tanner Creek
Youngs Creek
Deer Creek
Sprague Creek
Spring Creek
Miller Creek
Rye Creek
Lame Deer Creek
Alderson Creek
Coal Creek
E. Fk. Lame Deer Creek
S. Fk. Lame Deer Creek
Greenleaf Creek
Reservation Creek
Stebbins Creek
Logging Creek
Dry Creek
Lay Creek
Liscom Creek
Beaver Creek
Bringoff Creek
Ash Creek
Calun Creek
Deer Creek
Cook Creek
Coal Creek
E. Fk. Otter Creek
Home Creek
N. Fk. Deer Creek
S. Fk. Deer Creek
Harris Creek
Wall Creek
Whitten Creek
Zook Creek
Cook Creek
Black Eagle Fk. Cook Creek
Tie Creek
Kelly Creek
Wrench Creek
P K Creek
Corral Creek
Hanging Woman Creek
King Creek
Dry Creek
O'Dell Creek
Gate Creek
Poker Teechee Creek
Poker Jim Creek
Green Creek
Hay Creek
Timber Creek
E. Fk. Hanging Woman Creek

INTERMITTENT CREEKS (Continued)

Lee Creek
N. Fk. Lee Creek
S. Fk. Lee Creek
Stroud Creek
Horse Creek
E. Fk. Trail Creek
Three Mile Creek
Shorty Creek
Chrome Creek
Brian Creek
Ten Mile Creek
Paget Creek
Fifteen Mile Creek
Elk Creek
Coal Creek
Ash Creek
Lyon Creek
Stagrock Creek
First Creek
Cow Creek
Taylor Creek
N. Fk. Taylor Creek
S. Fk. Taylor Creek
Horse Creek
Camp Creek
Cub Creek
Indian Creek
Tooley Creek
Little Bear Creek
Pasture Creek
Bear Creek
Lost Boy Creek
Deer Creek
Fly Creek
Sand Creek
Kaiser Creek
Spring Creek
Telegraph Creek
Nine Mile Creek
Tullock Creek
Horse Creek
E. Fk. Sarpy Creek
Corrat Creek
Stocker Creek
E. Fk. Arnells Creek
N. Fk. Cottonwood Creek
S. Fk. Cottonwood Creek
Cottonwood Creek
N. Fk. Spring Creek
Pony Creek
Lay Creek
Cottonwood Creek
First Creek
Waddle Creek
Bowman Creek
Trail Creek
Fk. of Trail Creek
Finn Creek
Van Creek

WOLF POINT:

Police Creek
Oswego Creek
E. Fk. Oswego Creek
Flynn Creek
W. Fk. Wolf Creek
M. Fk. Wolf Creek
E. Fk. Wolf Creek
Wolf Creek
Sand Creek
Box Elder Creek
N. Fk. Tule Creek
W. Fk. Tule Creek
Little Wolf Creek
Wolf Creek
Chelsea Creek
Nickwall Creek
Long Creek
Hay Creek
Box Elder Creek
Badger Creek
Spring Creek
Smoke Creek
W. Charlie Creek
Lake Creek
Charlie Creek
Otter Creek
Two Mile Creek
Dugout Creek
E. Hardscabble Creek
Cherry Creek
Day Creek
Cottonwood Creek
Otis Creek
Coal Creek
N. Fk. Eagle Creek
Red Stone Creek
First Creek
Second Creek
Harry's Creek
Plentywood Creek
Crazy Horse Creek
McCoy's Creek
Box Elder Creek
Spring Creek
Ator Creek
Antelope Creek
Lake Creek
Lake Creek
Sand Creek
Lost Creek
Brush Mountain Creek
E. Fk. Brush Mountain Creek
W. Shotgun Creek
E. Shotgun Creek
Shotgun Creek
Little Muddy Creek
Red Bank Creek

GLENDIVE:

Remuda Creek
W. Fk. Remuda Creek
Prairie Elk Creek
Shade Creek
Figure Eight Creek
M. Fk. Prairie Elk Creek
E. Fk. Prairie Elk Creek
Porcupine Creek
W. Fork Sand Creek
Sand Creek
E. Fk. Sand Creek
Tusler Creek
W. Duck Creek
List Creek
Timber Creek
Cedar Creek
E. Fk. Cedar Creek
Sheep Creek
Sullivan Creek
W. Charlie Creek
Bluff Creek
Corral Creek
E. Fk. Bad Route Creek
M. Fk. Bad Route Creek
Brackett Creek
Timber Fork Creek
Deer Creek
Morgan Creek
Lower Sevenmile Creek
Sand Creek
Charlie Creek
Hardscrabble Creek
E. Hardscrabble Creek
N. Fk. Fox Creek
Otis Creek
Bennie Pierre Creek
M. Fk. Burns Creek
Glendive Creek

INTERMITTENT CREEKS (Continued)

Griffith Creek
Krug Creek
Linden Creek
War Dance Creek
O'Brien Creek
Sage Brush Creek
Smith Creek
C S Creek
Parson Creek
Dry creek
N. Fk. Dry Creek
Cottonwood Creek
S. Fk. Cottonwood Creek
Box Elder Creek
Flying V Creek
Cow Creek
Coal Creek
Duck Creek
McGuire Creek
Spring Creek
N. Fk. Buffalo Creek
S. Fk. Buffalo Creek
Lost Creek
Lone Tree Creek
Gyp Creek
Buffalo Springs Creek
Horse Creek
Hell Creek
McCune Creek
Antelope Creek
Dry Ash Creek
Stony Butte Creek
Cotter Creek
Ash Creek
Pasture Creek
Dirty Creek
Duck Creek
E. Duck Creek
Trail Creek
Wolf Creek
Hay Creek
Muskrat Creek
Long Grass Creek
E. Redwater Creek
N. Fk. List Creek
S. Fk. List Creek
Pasture Creek
W. Fk. Pasture Creek
E. Fk. Pasture Creek
N. Fk. Pasture Creek
W. Charlie Creek
Cottonwood Creek
Berry Creek

Hay Creek
Clear Creek
S. Fk. Clear Creek
W. Fk. Bad Route Creek
Bad Route Creek
Upper Seven Mile Creek
S. Fk. Deer Creek
N. Fk. Deer Creek
Thirteen Mile Creek
Three Mile Creek
Dry Creek
Timber Creek
Fox Creek
S. Fk. Cherry Creek
N. Fk. Lone Tree Creek
S. Fk. Lone Tree Creek
Lone Tree Creek
Four Mile Creek
M. Fk. Burns Creek
Burns Creek
Cotton Creek
Beer Slough Creek
Dunlap Creek
Crane Creek
Sears Creek
O'Brien Creek
Sage Brush Creek
Alkali Creek
Shadwell Creek
Smith Creek
C S Creek
Parson Creek
Dry Creek
N. Fk. Dry Creek
S. Fk. Dry Creek
Cottonwood Creek
N. Fk. Cottonwood Creek
S. Fk. Cottonwood Creek
Box Elder Creek
Beaver Creek
Little Beaver Creek
Hay Creek

MILES CITY:
Hay Creek
Custer Creek
W. Fk. Sand Creek
Sand Creek
Deadman's Creek
Muster Creek
Cherry Creek
N. Fk. Cherry Creek

Physics Creek
Harris Creek
Hunter Creek
Plenty Creek
Crooked Creek
N. Fk. Creek
Crooked Creek
Lost Boy Creek
Cottonwood Creek
Williams Creek
Cedar Creek
E. Fk. Cedar Creek
North Sunday Creek
Crooked Creek
S. Sunday Creek
Sunday Creek
Lignite Creek
Moon Creek
W. Fk. Moon Creek
E. Jones Creek
Jones Creek
Log Creek
Mill Creek
Squaw Creek
Johnson Creek
Prat Creek
Nelson Creek
E. Fk. Ash Creek
Ash Creek
Jack Creek
Brown Creek
Haddow Creek
Horse Creek
Foster Creek
Pumpkin Creek
Second Creek
Maggie Creek
Brackett Creek
Camp Creek
Cottonwood Creek
Coal Creek
Ten Mile Creek
Ash Creek
Bad Route Creek
Clear Creek
Cabin Creek
Spring Creek
Ham Creek
Whitney Creek
Little Whitney Creek
Pine Creek
Corral Creek

INTERMITTENT CREEKS (Continued)

Freddie Creek
Coal Creek
Snow Creek
Locate Creek
Meyers Creek
Laney Creek
Horse Creek
Sheep Creek
Strevell Creek
Second Creek
Mizpah Creek
Hercules Creek
Trail Creek
Archdale Creek
N. Fk. Locate Creek
Alkali Creek
Dry Creek
N. Fk. Cottonwood Creek
S. Fk. Cottonwood Creek
Seroggin Creek
Spring Creek
Lily Creek
Cedar Creek
Gibson Ditch Creek
Glendive Creek
S. Fk. Horse Creek
N. Fk. Cabin Creek
M. Fk. Cabin Creek
N. Fk. Pennel Creek
Hay Creek
Pine Creek
Timber Creek
Lame Jones Creek
Milk Creek
Brush Creek
Little Pine Creek
Sandstone Creek
S. Fk. Sandstone Creek
Timber Creek
Red Butte Creek
Cottonwood Creek
Cannonball Creek
Johny Creek
Dugout Creek
Waterhole Creek
Hiddenwater Creek
Little Beaver Creek
Chimney Creek
Soda Creek
Hay Creek

Fletcher Creek
N. Fk. Bachelor Creek
S. Fk. Bachelor Creek
Finley Creek
Paddy Fay Creek
Yank Creek
Miles Creek
Forest Creek
Deer Creek
Crackerbox Creek
Ash Creek
Ranch Creek
Antelope Creek
Hay Creek
Dugout Creek
Skunk Creek
Horse Creek
Duck Creek
Lamesteer Creek
Lone Tree Creek
Rattlesnake Creek
Ash Creek
Beaver Creek
S. Fk. Milk Creek
Spring Creek
Hanley Creek
Coon Creek
Duck Creek
S. Fk. Duck Creek
Mud Creek

EKALAKA:
Haddow Creek
N. Fk. Foster Creek
Foster Creek
Lay Creek
S. Fk. Foster Creek
W. Fk. Pumpkin Creek
Marvell Creek
Dry Creek
Ash Creek
Harris Creek
Sand Creek
Home Creek
Trapped Creek
N. Fk. Three Mile Creek
S. Fk. Three Mile Creek
Ten Mile Creek
Fifteen Mile Creek
Elk Creek

N. Fk. Elk Creek
S. Fk. Elk Creek
Lyon Creek
Taylor Creek
S. Fk. Taylor Creek
Indian Creek
Ash Creek
Y T Creek
W. Fk. Wolf Creek
E. Fk. Wolf Creek
Rough Creek
M. Fk. Cache Creek
Buck Creek
Cache Creek
N. Fk. Cache Creek
S. Fk. Cache Creek
Second Creek
First Creek
Baking Powder Creek
Ernest Creek
Fire Creek
Butte Creek
Buttermilk Creek
Bay Horse Creek
N. Fk. Bloom Creek
S. Fk. Bloom Creek
Mason Creek
Plum Creek
Spring Creek
Three Bar Creek
Flood Creek
Buffalo Creek
Thompson Creek
Trail Creek
Rough Creek
Bradshaw Creek
Ling Creek
Dry Creek
Bitter Creek
Dawson Creek
Mizpah Creek
Hercules Creek
Spring Creek
Ash Creek
Alkali Creek
Blacktail Creek
Spring Creek
S. Spring Creek
Whitetail Creek
Dry Creek

INTERMITTENT CREEKS (Continued)

Stump Creek
Crow Creek
Timber Creek
Allison Creek
Bear Skull Creek
Blacktail Creek
N. Fk. Bowers Creek
Prairie Dog Creek
Ranch Creek
Wright Creek
Belle Creek
Horse Creek
Ronah Creek
Dry Creek
Hay Creek
Pilgrim Creek
Little Pilgrim Creek
S. Fk. Horse Creek
E. Fk. Little Powder River
N. Fk. Horse Creek
Cabin Creek
Pocochedie Creek
Lightening Creek
Dry Creek
Scott Creek
Spring Creek
Duncan Creek
Thompson Creek
N. Thompson Creek
Deadman Creek
S. Fk. Willow Creek
M. Fk. Willow Creek
N. Fk. Willow Creek
Box Elder Creek
Steep Creek
Pork Creek
Spring Creek
Hay Creek
S. Fk. Whitetail Creek
M. Fk. Whitetail Creek
N. Fk. Whitetail Creek
Lily Creek
Little Beaver Creek
Dugan Creek
Russel Creek
Buffalo Creek
Lone Tree Creek
Dead Boy Creek
Big Ramme Creek
Fletcher Creek
Hay Creek
Horse Creek

Coal Creek
Sheep Creek
N. Fk. Coal Bank Creek
S. Fk. Coal Bank Creek
Humbolt Creek
Spring Creek
Snow Creek
Spillman Creek
Catamount Creek
Slick Creek
S. Slick Creek
Plum Creek
Cabin Creek
Skull Creek
Corral Creek
Prairie Dog Creek
Sand Creek
Hackberry Creek
Whitetail Creek
Deep Creek
Hawks Nest Creek
Cottonwood Creek
Park Creek
W. Fk. T L Creek
T L Creek
E. Fk. T L Creek
Cow Creek
E. Fk. L O Creek
N. Cottonwood Creek
N. Butte Creek
Blacktail Creek
Beaver Dam Creek
Trough Creek
S. Cottonwood Creek
S. Butte Creek
Hay Creek
Elk Horn Creek
Nine Mile Creek
Seven Mile Creek
Five Mile Creek
Owl Creek
S. Indian Creek
Anderson Creek
Basin Creek
Flat Butte Creek
Lone Tree Creek
Cottonwood Creek
Spring Creek
Kiwah Creek
S L Creek
Double Corral Creek
Lake Creek

N. Fk. Ash Creek
S. Fk. Ash Creek
Second Creek
Wolf Creek
Two Trees Creek
Sand Creek
Elmhurst Creek
Corral Creek
Road Creek
Coffee Creek
Gross Creek
Dick Creek
Hay Creek
Hudson Creek
H 7 Creek
O'Fallon Creek
Buffalo Creek
Hudson Creek
Third Creek
Doyle Creek
Bowers Creek
Burdethe Creek
Wolf Creek
Camp Creek
Soda Creek
Hanley Creek
E. Fk. O'Fallon Creek
Little Ramme Creek
Harmon Creek
Sand Creek
Tie Creek
L O Creek
Horse Creek
Willow Creek
Twelve Mile Creek

PERENNIAL CREEKS WITH PREDOMINANTLY SINGULAR OWNERSHIP CLASSIFICATION

KALISPELL:

Spread Creek
Pete Creek
Hell Roaring Creek
Fork Meadow Creek
Meadow Creek
Fowler Creek
N. Fk. Big Creek
Burnt Creek
Quartz Creek
Ruby Creek
Cedar Creek
Spar Creek
Ross Creek
Dry Creek
Cobler Creek
Bear Creek
Poorman Creek
Ramsey Creek
Sullivan Creek
Good Creek
Big Creek
S. Fk. Big Creek
Pleasant Valley Creek
Weasel Creek
Tuchuck Creek
Spruce Creek
Kishenehn Creek
Starvation Creek
Blue Sky Creek
Teepee Creek
Ford Creek
Parke Creek
Long Bow Creek
Akakala Creek
Bowman Creek
Logging Creek
Anaconda Creek
Dutch Creek
Camas Creek
Martin Creek
Hallowatt Creek
Big Creek
McGee Creek
Fish Creek
Skookoleel Creek
Griffin Creek

WALLACE:

McNeeley Creek
W. Fk. Trout Creek
E. Fk. Trout Creek
East Fork Big Creek
Mantrap Fk. Creek
W. Fk. Fishtrap Creek
Sieggel Creek
N. Fk. Little Joe Creek
S. Fk. Little Joe Creek
Torino Creek
Sabine Creek
Mission Creek
Dry Creek
Seepay Creek

HAMILTON:

Straight Creek
W. Fk. Fish Creek
Cache Creek
Cedar Log Creek
Willow Creek
N. Lost Horse Creek
S. Lost Horse Creek
Little Rock Creek

ELK CITY:

N. Fk. Trapper Creek
Trapper Creek
Little West Fork
Watch Tower Creek
Sheephead Creek
Porcupine Creek
Blue Joint Creek
Little Blue Joint Creek
Slate Creek
Colter Creek
Chicken Creek
Deer Creek
Woods Creek

CUTBANK:

Boundary Creek
Olson Creek
Valentine Creek
Dutch Creek
Camas Creek
Fish Creek
McDonald Creek
Thompson Creek
Red Eagle Creek
Mineral Creek
Lincoln Creek
Harrison Creek
Deerlick Creek
Nyack Creek
Pinchot Creek
Peril Creek
Coal Creek
Elk Creek
Energy Creek
Hungry Horse Creek
Tunnel Creek
Paola Creek
Park Creek
Lost Johnny Creek
Wounded Buck Creek
Lid Creek
Riverside Creek
Clayton Creek
Dickey Creek
Essex Creek
Canyon Creek
Sheep Creek
Bear Creek
Elk Creek
Knieff Creek
Aeneas Creek
Forest Creek
Wheeler Creek
Quintonkon Creek
Sullivan Creek
Clark Creek
Charite Creek
Long Creek
Lower Twin Creek
Divide Creek
Livermore Creek
N. Fk. Greasewood Creek
Greasewood Creek
Cut Bank Creek
N. Fk. Cut Bank Creek
Willow Creek
Dry Fork Creek
S. Fk. Cut Bank Creek
Summit Creek
Railroad Creek
Midvale Creek
Willow Creek
Deep Creek
Little Badger Creek
Devil Creek
Geifer Creek
Cy Creek
Twenty-five Mile Creek
Grouse Creek
Twin Creek
Granite Creek
Miner Creek
Morrison Creek
Lodgepole Creek

PERENNIAL CREEKS WITH PREDOMINANTLY SINGULAR OWNERSHIP CLASSIFICATION

(Continued)

Schafer Creek
Lee Creek
N. Badger Creek
Dolly Varden Creek
Limestone Creek
Cox Creek
Winter Creek
Strawberry Creek
Trail Creek
S. Fk. Birch Creek
Birch Creek
Spring Creek

CHOTEAU:
Ball Creek
Branch Creek
Connor Creek
Sullivan Creek
Doldier Creek
Twin Creek
Bruce Creek
Addition Creek
Jungle Creek
Bunker Creek
Gorge Creek
Stadium Creek
Cannon Creek
Slick Creek
Little Salmon Creek
Gill Creek
South Crow Creek
Big Salmon Creek
Shaw Creek
Spud Creek
Casey Creek
Lick Creek
George Creek
Dry Lake Creek
Pistol Creek
Big Knife Creek
Agency Creek
Schley Creek
Argosy Creek
Dolly Varden Creek
Clack Creek
Scalp Creek
Bowl Creek
Basin Creek

Dean Creek
Fool Creek
Silvertip Creek
Open Creek
S. Fk. Open Creek
Lick Creek
Wrong Creek
Route Creek
Nesbit Creek
Waldron Creek
Jones Creek
Wall Creek
Harrison Creek
Cost Jack Creek
Mid Creek
Black Bear Creek
Pedro Creek
Gates Creek
Red Shale Creek
Rock Creek
Ray Creek
Headquarters Creek
Biggs Creek
Moose Creek
Bridge Creek
Red Butte Creek
Cliff Creek
Helen Creek
Lewis Creek
Phil Creek
Woodfir Creek
Holbrook Creek
Burnt Creek
Bartlett Creek
Lina Creek
Lime Creek
Catchem Creek
Indian Creek
Lost Fork A Horn Creek
Nineteen Creek
Hoadley Creek
Deer Creek
Prairie Creek
Bighead Creek
Wood Creek
Straight Creek
Ellis Creek
Kapid Creek

Fiction Creek
Stadler Creek
Spring Creek
Alloy Creek
Basin Creek
Camp Creek
Danaher Creek
Fool Hen Creek
Youngs Creek
Hahn Creek
Otter Creek
Cabin Creek
Gordon Creek
Furious Creek
Babcock Creek
Otis Creek
Marshall Creek
Youngs Creek
Jenny Creek
Dunham Creek
Calf Creek
Helio Creek
Hayden Creek
Bar Creek
Dry Fork Creek
Abin Creek
Conger Creek
Lake Creek
Meadow Creek
Mineral Creek
Camp Creek
Dobrota Creek
Cooney Creek
Whitetail Creek
Scotty Creek
Middle Fk. Creek
Copper Creek
Bighorn Creek
W. Fk. Falls Creek
Camp Creek
E. Fk. Falls Creek
Lookout Creek
Falls Creek
Snowbank Creek

BUTTE:
Stoney Creek
Daly Creek
S. Fk. Daly Creek

PERENNIAL CREEKS WITH PREDOMINANTLY SINGULAR OWNERSHIP CLASSIFICATION

(Continued)

Cooper Creek
Carp Creek
Bert Creek
Trout Creek
Seymour Creek
Hat Creek
Deer Creek
Elder Creek
Grouse Creek

DILLON:
Martin Creek
Meadow Creek
Moose Creek
Hell Roaring Creek
May Creek
Gory Creek
N. Fk. Big Hole Creek
W. Fk. Big Hole Creek
Stone Creek
Patten Gail Creek
Lacy Creek
Wyman Creek
Bloody Dick Creek
Copper Creek

DUBOIS:
Divide Creek

GREAT FALLS:
Iron Creek
N. Fk. Hoover Creek

WHITE SULPHUR SPRINGS:
Wilson Creek
S. Fk. Crow Creek
Russel Fk. Deep Creek
E. Fk. Hopley Creek

BOZEMAN:
Arasta Creek
N. Fk. Wigwam Creek
Middle Fork Creek
Camp Creek
N. Fk. Hell Roaring Creek
Hell Roaring Creek
Cascade Creek
Moose Creek
Sourdough Creek
Lick Creek

E. Fk. Hyalite Creek
Beaver Creek
Portal Creek
Specimen Creek
N. Fk. Specimen Creek
E. Fk. Specimen Creek
Pine Creek
S. Fk. Pine Creek
Davis Creek
Basin Creek
Froze To Death Creek
Great Falls Creek
Weasel Creek
Speculation Creek
Miller Creek
Dry Fork Creek
Iron Creek
N. Fk. Sixmile Creek
Bear Creek
W. Fk. Mill Creek
Passage Creek
W. Fk. Horse Creek
Horse Creek
E. Fk. Mill Creek
Anderson Creek
Colley Creek
Lambert Creek
N. Fk. Hell Roaring Creek
Clover Creek
Grizzly Creek
Beaver Creek
E. Branch Hell Roaring
M. Fk. Hell Roaring
E. Fk. Hell Roaring
Fourmile Creek
Meatrack Creek
S. Fk. Bridge Creek
Grassy Creek
Hawley Creek
Rainbow Creek
Wounded Man Creek
Bull Creek
Lost Creek
Wolverine Creek
Rock Creek
Pebble Creek
Coyote Creek

ASHTON:
Cottonwood Creek

Iron Creek
Coal Creek
Standard Creek

BILLINGS:
Squaw Creek
West Fishtail Creek
East Fishtail Creek
Falls Creek
Woodbine Creek
Corkscrew Creek
Clarks Creek
Chicken Creek
Hell Roaring Creek
Lake Fork Creek
Wyoming Creek
Wet Creek
E. Fk. Creek
Flat Creek
Hay Creek
E. Fk. Pryor Creek
Cave Creek
Lost Water Creek
Beauvais Creek
Buster Creek
Hough Creek

GLASGOW:
Little Porcupine Creek

HARDIN:
West Pass Creek
E. Pass Creek
Twin Creek

WOLFPOINT:
Wolf Creek
Cottonwood Creek

PERENNIAL CREEKS WITH PREDOMINANTLY MULTIPLE OWNERSHIP CLASSIFICATION*

KALLISPELL:
Vinal Creek
Seventeen Creek
Pine Creek
O'Brien Creek
Pipe Creek
Callahan Creek
Falls Creek
Parmeter Creek
Iron Creek
N. Fk. Keller Creek
Lake Creek
Porcupine Creek
Keeler Creek
Camp Creek
Flower Creek
Granite Creek
Deep Creek
Big Cherry Creek
Libby Creek
Elk Creek
Rock Creek
Young Creek
Dodge Creek
Phillips Creek
Indian Creek
Porcupine Creek
Saint Clair Creek
Sutton Creek
Pinkham Creek
Griffith Creek
Mud Creek
Grave Creek
Edna Creek
Fortine Creek
Briston Creek
Fivemile Creek
Barron Creek
Warland Creek
Jackson Creek
Cripple Horse Creek
Rain Creek
Canyon Creek
Dry Fork Creek
Wolf Creek
Dunn Creek
Buck Creek
Little Wolf Creek
Cody Creek
Fawn Creek
Swamp Creek
Hoodoo Creek
Cow Creek
McKillop Creek
Miller Creek
Barnum Creek
Elk Creek
McGregor Creek
Trail Creek
Teepee Creek
Whale Creek
Moose Creek
Hawk Creek
Red Meadow Creek
Deep Creek
Hay Creek
Moran Creek
Coal Creek
S. Fk. Coal Creek
Deadhorse Creek
Sunday Creek
Lazy Creek
Whitefish Creek
Good Creek
Alder Creek
Canyon Creek
Shepard Creek
Logan Creek
Haskill Creek
Trumbull Creek
Lost Creek
Big Lost Creek
O'Neil Creek
Coniff Creek
Patrick Creek
Mount Creek
Wild Bill Creek
Bitterroot Creek
Ashlem Creek
Flattail Creek

WALLACE:
E. Fk. Elk Creek
Pilgrim Creek
Polk Creek
McKay Creek
Swamp Creek
Silver Butte Creek
Martin Creek
Trout Creek
White Pine Creek
Beaver Creek
Big Beaver Creek
Little Beaver Creek
Deep Creek
Clear Creek
Prospect Creek
Wilkes Creek
W. Fk. Big Creek
M. Fk. Big Creek
Big Creek
Himes Creek
McGinnis Creek
Indian Creek
Murr Creek
Briggs Creek
Redmond Creek
Vermillion Creek
Lazier Creek
Meadow Creek
Big Rock Creek
Fishtrap Creek
Chippy Creek
Bear Creek
Graves Creek
Jungle Creek
Little Rock Creek
Squaw Creek
Mudd Creek
Weesville Creek
Buffalo Bill Creek
Lynch Creek
Clark Creek
Dry Creek
Cherry Creek
Savanac Creek
West Twin Creek
Twelve Mile Creek
W. Fk. Swamp Creek
E. Fk. Swamp Creek
Henry Creek
McLaughlin Creek
Rock Creek
Tamarack Creek
Ward Creek
Little Joe Creek
Two Mile Creek
Cold Creek
Keystone Creek
Pardee Creek
Flat Creek

* INCLUDES CREEKS IN PREDOMINANTLY PRIVATE OWNERSHIP CLASSIFICATION

PERENNIAL CREEKS WITH PREDOMINANTLY MULTIPLE OWNERSHIP CLASSIFICATION*

Dry Creek
Lost Creek
Cedar Creek
Trout Creek
Sunrise Creek
Meadow Creek
Quartz Creek
Post Creek
Dayton Creek
Magpie Creek
Valley Creek
N. Fk. Valley Creek
Nine Mile Creek
Big Blue Creek
Pine Creek
Marion Creek
Josephine Creek
McCormick Creek
Kennedy Creek
Butler Creek
Stony Creek
Six Mile Creek
Mill Creek
First Creek
Second Creek
Eddy Creek
Deep Creek
Miller Creek
Nemote Creek
S. Fk. Nemote Creek

HAMILTON:
Rock Creek
Fish Creek
N. Fk. Fish Creek
Petty Creek
Albert Creek
Rock Creek
La Valle Creek
Butler Creek
Grant Creek
Deep Creek
O'Brien Creek
Burdelle Creek
S. Fk. Fish Creek
Granite Creek
W. Fk. Lolo Creek
W. Fk. Butte Creek
S. Fk. Butte Creek
Soft Rock Creek
Morman Creek

Carlton Creek
Davis Creek
One Horse Creek
Eight Mile Creek
Sweeney Creek
Bass Creek
Kootenai Creek
Big Creek
Willoughby Creek
Sweathouse Creek
Spooner Creek
Bear Creek
Fred Burr Creek
Birch Creek
Sheafman Creek
Mill Creek
Blodgett Creek
Canyon Creek
Sawtooth Creek
Gird Creek
Roaring Lion Creek
Skalkalio Creek
Sleeping Child Creek
Lost Horse Creek
Little Sleeping Child Creek
Rock Creek
Tin Cup Creek
Lowman Creek

ELK CITY:
Tin Cup Creek
Little Tin Cup Creek
McCoy Creek
Rye Creek
Chaffin Creek
Boulder Creek
Laird Creek
Warm Spring Creek
Piquett Creek
Soda Springs Creek
Nez Perce Fork
Rombo Creek
Mud Creek
Overwhich Creek
Coal Creek
West Creek
Hughes Creek

CUTBANK:
Lee Creek

Otatso Creek
Kennedy Creek
Boulder Creek
Wild Creek
Swiftcurrent Creek
Birch Creek
Wolf Creek
Bear Creek
Schmidt Creek
Divide Creek
Lake Creek
Badger Creek
Whitetail Creek
N. Fk. Birch Creek
N. Fk. Dupuyer Creek
Birch Creek
Bullhead Creek
Dupuyer Creek
Sheep Creek
Spring Creek
Blackleaf Creek

CHOTEAU:
Bond Creek
N. Fk. Lost Creek
S. Fk. Lost Creek
Porcupine Creek
Goat Creek
Woodward Creek
Fatty Creek
Squeezer Creek
Gorge Creek
Cedar Creek
Lion Creek
Piper Creek
Alder Creek
Jim Creek
Pony Creek
Cat Creek
Dog Creek
Simpson Creek
N. Fk. Lower Cold Lake Creek
Cold Creek
Condon Creek
S. Fk. Lower Cold Lake Creek
N. Fk. Elk Creek
Cooney Creek
Rumble Creek
Windfall Creek

PERENNIAL CREEKS WITH PREDOMINANTLY MULTIPLE OWNERSHIP CLASSIFICATION*

Glacier Creek
Hemlock Creek
Frenchy Creek
Red Butte Creek
Post Creek
Buck Creek
Barber Creek
Beaver Creek
Crazy Horse Creek
Glacier Creek
Morrell Creek
Camp Creek
Uhler Creek
Marshell Creek
Inez Creek
Deer Creek
North Fork Placid Creek
Grant Creek
Rattlesnake Creek
W. Fk. Gold Creek
Gold Creek
Boles Creek
Belmont Creek
Finley Creek
Blanchard Creek
N. Fk. Blanchard Creek
Lost Horse Creek
Lost Prairie Creek
Trail Creek
N. Fk. Deep Creek
S. Fk. Deep Creek
Prairie Creek
Bighead Creek
Little Willow Creek
Wood Creek
Ford Creek
N. Fk. Ford Creek
Yetty Creek
Moudess Creek
Straight Creek
Cottonwood Creek
Lodgepole Creek
Shanky Creek
Monture Creek
Falls Creek
McCabe Creek
E. Fk. McCabe Creek
Dick Creek
Warren Creek
Rock Creek
Arrastra Creek

Beaver Creek
Stonewall Creek
Park Creek
Mudoy Creek
Rinker Creek
Blind Horse Creek
N. Fk. Willow Creek
S. Fk. Willow Creek
Willow Creek
Deep Creek
Bark Creek
Cut Rock Creek
Willow Creek
Smith Creek
Elk Creek
Spring Creek
Dry Creek
N. Fk. Simms Creek
S. Fk. Simms Creek
Goss Creek
Buibber Creek
Elk Creek
Falls Creek
Auchard Creek
Flat Creek
Big Skunk Creek
Green Creek
Alice Creek
Cadotte Creek
Green Creek
Wolf Creek
Gladstone Creek
Rogers Creek
Rock Creek
Bridge Creek

BUTTE:
Rattlesnake Creek
Pattee Creek
Union Creek
Crystal Creek
Donovan Creek
Dirty Ike Creek
Gilbert Creek
Three Mile Creek
Rock Creek
W. Fk. Gold Creek
Gold Creek
Miller Creek
Eightmile Creek
Granite Creek
Willow Creek

Gird Creek
Skalkaho Creek
Sleeping Child Creek
Arrastra Creek
Beaver Creek
Willow Creek
W. Fk. Rock Creek
Daly Creek
E. Fk. Rock Creek
Ross Creek
M. Fk. Rock Creek
Wales Creek
Yourname Creek
McElwain Creek
Nevada Creek
Douglas Creek
Cottonwood Creek
Ten Mile Creek
N. Fk. Lower Willow Creek
Lower Willow Creek
Flint Creek
Barnes Creek
Dunkleberg Creek
Perkins Creek
Hoover Creek
Carten Creek
Brock Creek
Blum Creek
Pikes Peak Creek
Gold Creek
Crevice Creek
Warm Springs Creek
Willow Creek
Rock Creek
Douglas Creek
Gird Creek
Henderson Creek
Smart Creek
Boulder Creek
S. Fk. Lower Willow Creek
Marshall Creek
Tin Cup Creek
Powell Creek
Marsh Creek
Fred Burr Creek
Racetrack Creek
Dempsey Creek
N. Fk. Flint Creek
Modesty Creek
Lost Creek

PERENNIAL CREEKS WITH PREDOMINANTLY MULTIPLE OWNERSHIP CLASSIFICATION*

Antelope Creek
Dutchman Creek
Foster Creek
Warm Spring Creek
Cable Creek
Twin Lakes Creek
Mill Creek
Clear Creek
Willow Creek
Keep Cool Creek
Humbug Creek
Willow Creek
Poorman Creek
Virginia Creek
Canyon Creek
Little Prickly Pear Creek
Halfway Creek
Six Mile Creek
Three Mile Creek
Lost Horse Creek
Three Mile Creek
Spotted Dog Creek
Trout Creek
Dog Creek
Greenhorn Creek
Cherry Creek
Seven Mile Creek
Ten Mile Creek
Fred Burr Creek
Buffalo Creek
Clancy Creek
Cottonwood Creek
Baggs Creek
Burnt Hollow Creek
Peterson Creek
Oko Fino Creek
Dry Cottonwood Creek
Indian Creek
Rock Creek
Thunder Bolt Creek
Red Rock Creek
Jack Creek
Basin Creek
Cataract Creek
High Ore Creek
Spring Creek
Beaver Town Creek
Muskrat Creek
Rawhide Creek
Silver Bow Creek
Lowland Creek
Bison Creek
Nez Perce Creek
Whitetail Creek
Beaver Creek
Little Whitetail Creek
Jack Creek

DILLON:
Hart Creek
Cameron Creek
Camp Creek
Reime Creek
Tolan Creek
Thompson Creek
Trail Creek
Tie Creek
Johnson Creek
Bender Creek
Ruby Creek
Mussigbrod Creek
Plamton Creek
Swamp Creek
Rock Creek
Big Lake Creek
Little Lake Creek
Miner Creek
Englejand Creek
Hamby Creek
Pioneer Creek
Pintlar Creek
Howell Creek
Mudd Creek
M. Fk. Fishtrap Creek
E. Fk. Fishtrap Creek
W. Fk. La March E Creek
Bryant Creek
Alder Creek
Jerry Creek
N. Fk. Divide Creek
Poolittle Creek
McVay Creek
Francis Creek
Stanley Creek
Steel Creek
Squaw Creek
Lacy Creek
Canyon Creek
Trapper Creek
Cherry Creek
Rock Creek
Warm Spring Creek
Bull Creek
Fox Creek
Pole Creek
Grasshopper Creek
Dyce Creek
Birch Creek
Rattlesnake Creek
Taylor Creek
Willow Creek
Pine Creek
Coyote Creek
Buffalo Creek
Sagebrush Creek
Horse Prairie Creek
Divide Creek
Basin Creek
Blackmail Creek
Homestake Creek
Little Pipestone Creek
Roaring Creek
Big Pipestone Creek
Moose Creek
Soap Creek
Camp Creek
McCartney Creek
Rochester Creek
Nez Perce Creek
Cherry Creek
Dry Fk. Creek
Fish Creek
Dry Boulder Creek
Browns Creek
Willow Creek
Frying Pan Creek
Blacktail Creek
Stone Creek
Carter Creek
Spring Creek
Trout Creek
McHessor Creek
Wisconsin Creek
Nugget Creek
Indian Creek
Garden Creek
Quaking Aspen Creek
Alder Creek
Idaho Creek
Ramshorn Creek
Gallagher Creek
Sage Creek
Rock Canon Creek

PERENNIAL CREEKS WITH PREDOMINANTLY MULTIPLE OWNERSHIP CLASSIFICATION*

Moos Creek
Sweet Water Creek
Greenhorn Creek
Ledford Creek
Rye Creek
Whitetail Creek

DUBOIS:
Junction Creek
Big Beaver Creek
Horse Prairie Creek
Ledford Creek

SHELBY:
Big Sandy Creek

GREAT FALLS:
Muddy Creek
Crown Butte Creek
Little Muddy Creek
Little Trout Creek
Sawmill Creek
Prewett Creek
Hardy Creek
Bird Creek
N. Fk. Stickney Creek
S. Fk. Stickney Creek
W. Fk. Hound Creek
Hound Creek
Highwood Creek
Belt Creek
Big Willow Creek
Little Belt Creek
Big Otter Creek
Logging Creek
Pilgrim Creek
Hoover Creek
Chip Creek
Shonkin Creek
Flat Creek
Cut Bank Creek
Fall Creek
Arrow Creek
Byrne Creek
Brown Creek
Hay Creek
Suprise Creek
Coffee Creek
Wolf Creek
Dry Wolf Creek
Willow Creek

Sage Creek

ASHTON:
Ruby Creek
Horse Creek
Papoose Creek
Squaw Creek
Wapiti Creek
Odell Creek
Teepee Creek
Hell Roaring Creek
Wolf Creek
Beaver Creek
Mile Creek
W. Fk. Watkins Creek
Denny Creek
Duck Creek

HAVRE:
Lodge Creek
Big Sandy Creek
Clear Creek
Muddy Creek
Bean Creek
Peoples Creek
Snake Creek
N. Branch White Bear Creek
S. Branch White Bear Creek
White Bear Creek
Mud Creek
Mud Creek

LEWISTOWN:
Dog Creek
Coffee Creek
Warm Springs Creek
Sage Creek
Big Spring Creek
Beaver Creek
Cow Creek
Squaw Creek
Bull Creek
Casino Creek
Little Peoples Creek
Second Creek
Soda Creek
Drag Creek
Alkali Creek
Dovetail Creek

Cottonwood Creek
Box Elder Creek
Cat Creek
McDonald Creek

WHITE SULPHUR SPRINGS:
Cottonwood Creek
Middle Creek
Elk Creek
Beaver Creek
Soup Creek
Trout Creek
Magpie Creek
Prickly Pear Creek
Antelope Creek
Beaver Creek
Dutchman Creek
McCleuaw Creek
Staubach Creek
Muskrat Creek
Crow Creek
Indian Creek
Elkhorn Creek
Dry Creek
Spring Branch Creek
Warm Springs Creek
Harley Creek
Freeman Creek
Spring Creek
E. Fk. Eagle Creek
Shannon Creek
Eagle Creek
Pole Creek
Cabin Creek
Calf Creek
Sheep Creek
Butte Creek
Indian Creek
Moose Creek
Camas Creek
Deer Creek
Whitetail Deer Creek
Spring Creek
Newlan Creek
Trout Creek
Four Mile Creek
Little Birch Creek
Woods Creek
Willow Creek
Duck Creek
Gurnett Creek
Fords Creek

PERENNIAL CREEKS WITH PREDOMINANTLY MULTIPLE OWNERSHIP CLASSIFICATION*

Deep Creek
Ray Creek
N. Fk. Ray Creek
Deep Creek
Greyson Creek
Dry Creek
Hay Creek
Battle Creek
Sixteen Mile Creek
Lost Creek
Meadow Creek
Indian Creek
Six Mile Creek
Sixteen Mile Creek
S. Fk. Sixteen Mile Creek
Cottonwood Creek
Muddy Creek
Blacktail Creek
Sage Creek
Antelope Creek
W. Fk. Antelope Creek
Belt Creek
N. Fk. Eight Mile Creek
Five Mile Creek
Hall Creek
Checkerboard Creek
W. Fk. Flagstaff Creek
Trail Creek
Spring Creek
Daisy Dean Creek
E. Fk. Haymaker Creek
W. Fk. Hopley Creek
M. Fk. Hopley Creek
Haymaker Creek
Hensley Creek
Robinson Creek
Alabaugh Creek
Big Elk Creek
Miller Creek
Little Elk Creek
Cottonwood Creek
Lost Horse Creek
Muddy Creek
E. Muddy Creek
Comb Creek
Warm Spring Creek
Woodson Creek
Canyon Creek
M. Fk. Cottonwood Creek
American Fk. Creek
Sweet Grass Creek
M. Fk. American Fork
Potter Creek

West Creek
Cottonwood Creek
Porcupine Creek
Dry Creek
Otter Creek
Devil Creek
Horse Creek
Daisy Dean Creek
Elk Creek
Muddy Creek

BOZEMAN:
S. Fk. Cottonwood Creek
Antelope Creek
Little Antelope Creek
Milligan Creek
Willow Creek
Cataract Creek
N. Willow Creek
S. Willow Creek
Camp Creek
Washington Creek
N. Meadow Creek
S. Meadow Creek
Hot Springs Creek
Burnt Creek
Bradley Creek
Norwegian Creek
Dry Hollow Creek
Cherry Creek
Pole Creek
Bear Trap Creek
St. Joe Creek
Leonard Creek
Downey Creek
Granite Creek
E. Fk. Granite Creek
Moore Creek
Fletcher Creek
Eight Mile Creek
Trail Creek
Moran Creek
Moores Creek
Wigwam Creek
Jack Creek
Jordan Creek
Crooked Creek
Cedar Creek
Bear Creek
Boulder Creek
Tolman Creek
Mill Creek
Burger Creek

Warmsprings Creek
Ruby Creek
Hyde Creek
Corral Creek
Indian Creek
Wolf Creek
Baker Creek
Yellow Dog Creek
Bull Run Creek
Dry Creek
Pass Creek
Quagle Creek
Foster Creek
Bear Creek
Reese Creek
Thompson Creek
Boxter Creek
Middle Cottonwood Creek
Flathead Creek
Arrol Creek
Fairy Creek
Cache Creek
Bridger Creek
White Creek
Stone Creek
Spring Creek
Dry Creek
Brackett Creek
Miles Creek
Bridgeman Creek
Antelope Creek
Looking Glass Creek
Canyon Creek
Bangtail Creek
N. Fk. Willow Creek
M. Fk. Willow Creek
S. Fk. Willow Creek
Willow Creek
Elk Creek
Mill Creek
E. Fk. Cherry Creek
N. Fk. Spanish Creek
S. Fk. Spanish Creek
Twin Creek
Spanish Creek
Camp Creek
Goose Creek
Squaw Creek
Smith Creek
Swan Creek
Wilson Creek
Little Bear Creek
Big Bear Creek

PERENNIAL CREEKS WITH PREDOMINANTLY MULTIPLE OWNERSHIP CLASSIFICATION*

S. Cottonwood Creek
Hyalite Creek
Limestone Creek
Hyalite Creek
Bear Creek
Timberline Creek
Trail Creek
N. Fk. Eight Mile Creek
S. Fk. Eight Mile Creek
Miller Creek
Findley Creek
Pine Creek
Deer Creek
Portal Creek
Dudley Creek
First Yellow Mule Creek
Shedhorn Creek
Wolf Creek
Taylor Fork Creek
S. Fk. Jack Creek
Buck Creek
Wapiti Creek
Sage Creek
Big Spring Creek
Buffalo Horn Creek
Porcupine Creek
Daly Creek
Trail Creek
Tom Miner Creek
Skully Creek
Rock Creek
Big Creek
Smokey Creek
Cottonwood Creek
Cliff Creek
Lewis Creek
Donahue Creek
Stoughton Creek
Fisher Creek
Horse Creek
Sheep Creek
Slip Slide Creek
Cottonwood Creek
Lion Creek
Mill Creek
Mol Heron Creek
Reese Creek
Cedar Creek
Little Trail Creek
Eagle Creek
Cinnabar Creek
Horse Creek
Little Indian Creek
Cottonwood Creek
E. Fk. Spring Creek
Rock Creek
Kay Creek
Crazy Head Creek
Ferry Creek
Perkins Creek
Area Creek
Fleshman Creek
Indian Creek
Hammond Creek
Chicken Creek
Tobin Creek
Fiddle Creek
Adair Creek
Bull Run Creek
Miners Creek
Dry Creek
Beaver Creek
Mission Creek
Falls Creek
Sheep Creek
Little Rock Creek
Hole In The Rock Creek
Locke Creek
Greenley Creek
Little Mission Creek
Dog Creek
Lowell Creek
S. Fk. Big Timber Creek
Big Timber Creek
Swamp Creek
Whitetail Creek
Little Timber Creek
Cort Creek
Sawmill Creek
Bailey Creek
Spring Creek
West Fork
Shed Creek
Cow Creek
Oxbow Creek
Alkali Creek
W. Fk. Duck Creek
Duck Creek
Jarrett Creek
Fryer Creek
Antelope Creek
Susie Creek
Castle Creek
W. Fk. Upper Deer Creek
Strickland Creek
Trail Creek
Suce Creek
Deep Creek
N. Fk. Deep Creek
S. Fk. Deep Creek
Pool Creek
McDonald Creek
Barney Creek
Cascade Creek
N. Fk. McDonald Creek
S. Fk. McDonald Creek
Strawberry Creek
Mill Creek
Elbow Creek
Davis Creek
Great Falls Creek
Elk Creek
Six Mile Creek
Crevice Creek
Hell Roaring Creek
Buffalo Creek
Slough Creek

ROUNDUP:
Ross Fk. Creek
Big Rock Creek
Little Rock Creek
Beaver Creek
Barrows Creek
Red Bluff Creek
Lebo Creek
American Fork
Fish Creek
Sweet Grass Creek
Cayuse Creek
Otter Creek
S. Fk. McDonald Creek
Swimmingwoman Creek
Pole Creek
Willow Creek

BILLINGS:
Big Timber Creek
Meyers Creek
Lodgepole Creek
Castle Creek
Trout Creek
Bad Cannon Creek
Fishtail Creek
West Rosebud Creek
Goose Creek

PERENNIAL CREEKS WITH PREDOMINANTLY MULTIPLE OWNERSHIP CLASSIFICATION*

Soda Butte Creek
M. Fk. W. Rosebud Creek
E. Fk. W. Rosebud Creek
E. Rosebud Creek
W. Fk. Rock Creek
Valley Creek
Canyon Creek
Keyser Creek
Red Lodge Creek
Rock Creek
Bluewater Creek
Butcher Creek
W. Red Lodge Creek
Jack Creek
Bear Creek
Gold Creek
Grove Creek
Silvertip Creek
Cottonwood Creek
Bridger Creek
Pryor Creek
Sage Creek
Crooked Creek
Dry Head Creek
Deadman's Creek
Medicine Creek

GLASGOW:
Whitewater Creek
Alkali Creek
Beaver Creek
W. Alkali Creek
Benchman Creek
Rock Creek
Willow Creek
Larb Creek
W. Fk. Porcupine Creek
Porcupine Creek
Willow Creek

JORDAN:
Beaver Creek

HARDIN:
Soap Creek
Rotten Grass Creek
Lodge Grass Creek
Pass Creek
Owl Creek
Bear Creek
Rosebud Creek
Otter Creek

WOLF POINT:
Butte Creek
Outlet Creek
Smoke Creek
Eagle Creek
M. Fk. Eagle Creek
Whitetail Creek
Big Muddy Creek
Beaver Creek
Give Out Morgan Creek
Redwater Creek

MILES CITY:
O'Fallon Creek
Pennell Creek
E. Fk. O'Fallon Creek

EKALAKA:
Little Pumpkin Creek
Pumpkin Creek

[5] Montana Department of Natural Resources and Conservation Future of the Yellowstone..?, 1977, p. 20.

[6] Montana Department of Natural Resources and Conservation, The Effects of Altered Streamflow on Water-Based Recreation in the Yellowstone River Basin, Montana, 1977, p. 73.

[7] Montana Department of Natural Resources and Conservation, Future of the Yellowstone..?, 1977, p. 40, 41.

FOOTNOTES

[1] Montana Department of Fish, Wildlife and Parks, 1978 Montana Statewide Comprehensive Outdoor Recreation Plan, 1978, pp. i, 92.

[2] Ann Schafer, Canoeing Western Waterways, Mountain States (N.Y.: Harper and Row, 1978) pp. 54, 55.

INTERNATIONAL SCALE OF RIVER DIFFICULTY: (If rapids on a river generally fit into one of the following classifications, but the water temperature is below 50 degrees F, or if the trip is an extended trip in a wilderness area, the river should be considered one class more difficult than normal.)

CLASS I.	Moving water with a few riffles and small waves. Few or no obstructions.
CLASS II.	Easy rapids with waves up to 3 feet and wide, clear channels that are obvious without scouting. Some maneuvering is required.
CLASS III.	Rapids with high, irregular waves often capable of swamping an open canoe. Narrow passages that often require complex maneuvering. May require scouting from shore.
CLASS IV.	Long, difficult rapids with constricted passages that often require precise maneuvering in very turbulent waters. Scouting from shore is often necessary, and conditions make rescue difficult. Generally not possible for open canoes. Boaters in covered canoes and kayaks should be able to Eskimo roll.
CLASS V.	Extremely difficult, long, and very violent rapids with highly congested routes which nearly always must be scouted from shore. Rescue conditions are difficult and there is significant hazard to life in event of a mishap. Ability to Eskimo roll is essential for kayaks and canoes.
CLASS VI.	Difficulties of Class V carried to the extreme of navigability. Nearly impossible and very dangerous. For teams of experts only, after close study and with all precautions taken.

[3] The surface ownership percentages reported in the text were calculated by the researcher from a 1:500,000 surface ownership base map. Smaller scale, current surface ownership maps with coverage for the entire length of all study rivers were not available. The methods required that the 1:500,000 maps be updated for changes in ownership along the river corridors. A digitizer was then used to trace and calculate river mileages. These mileages were recorded by ownership jurisdiction; totaled and figured as a percentage of the total.

[4] Montana Department of Natural Resources and Conservation, Future of the Yellowstone..?, 1977, p. 18.

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